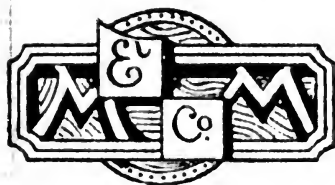

VEGETABLE CULTURE

ALEXANDER DEAN



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VEGETABLE CULTURE



VEGETABLE CULTURE

A PRIMER FOR AMATEURS,
COTTAGERS, AND ALLOTMENT-HOLDERS

BY

ALEXANDER DEAN, F.R.H.S.

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EDITED BY J. WRIGHT

WITH THIRTY-EIGHT ILLUSTRATIONS

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PREFACE

FLOWERS are fascinating by their perfume and their beauty ; fruit is alluring by its form, colour, toothsome qualities, and uses : it is not surprising therefore that both fruits and flowers are being increasingly cultivated. It is most desirable that there should be a further extension in those delightful home pursuits ; but not in the smallest degree less desirable is it that Vegetables should have all the attention that their commanding merits deserve. It is gratifying to know that their value is becoming more and more recognised. For a long time they were assigned a relatively low place in Horticultural exhibitions, whereas now they form a prominent feature at many, while lectures on Vegetables are largely attended by interested audiences. With the rapidly increasing

number of growers of the wholesome food crops mentioned in the following pages it is hoped there will be greater excellence in the produce. That is the purpose of this *Primer*, and as the details of culture given are founded on the experience of half a century by a writer intimately acquainted with old and new varieties, also as the instructions are given plainly it is hoped the object in view will be attained, as then will the several workers make the best of the land in this most serviceable department of cultivation.

J. W.

LONDON,

November 28th, 1895.

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VEGETABLE CULTURE

THOSE who can grow vegetables well, whether in garden, allotment, or field, may be said to have mastered one of the chief elements of gardening, and are entitled to rank amongst the best cultivators. There is no branch of the gardening art that calls into existence such complete forces of knowledge and of labour in combination as is found in the production of first-class vegetables. In these products we find something more than luxuries ; we find indeed food of the highest order for humanity, from which may be derived at once strength and health. But vegetables cannot be had from any soil in the best form for the mere asking. We have seen soils apparently of the poorest, when brought for a few years under the influence of the best cultivation, made to produce the finest quality, allied to the handsomest of products. So also have we seen ground of undoubted natural excellence produce little better than rubbish, because into it has been put neither skill nor labour. Whilst there is no royal road to success in vegetable production, there is yet no thorny path to travel. True, some soils are naturally better than others, but all the same it is hardly possible to say, in relation to poor soils, what

may not be produced if only real skill and intelligence with ample labour be employed in their cultivation.

Conscious however as we are of the excellence in many directions of vegetable produce—and even comparatively untaught men often obtain on allotments and in cottage gardens remarkable results—yet are we equally aware how great is the ignorance which prevails, not only in relation to the best methods in the preparation of the soil and in after-treatment, but also in relation to kinds or varieties of vegetables, and the best ways of utilising these when obtained, so as to render their cultivation both pleasant and profitable. It is therefore with a desire to furnish wider information on all matters of a general character in regard to vegetables and their culture that this Primer has been prepared, and we do not hesitate to say that it embodies the best practice of to-day as well as describes the best varieties.

It will be seen that in the treatment of the various matters included in the book, we have first referred to the soil, its preparation or cultivation, conjoined to manuring or furnishing to it the necessary elements of fertility. In these things lies the very foundation of all subsequent success. It is essentially beginning well that leads to ending well. Gardening means at once spade (or fork) and manual labour. It embraces at the same time the most primitive and the very best forms of cultivation, but it is because our aids in tools are not primitive but modern that if the method be ancient it at least renders labour comparatively easy. With all the ingenuity and cost conceivable, there is not to-day any method of cultivating that is found to be more profitable, or productive of better results, than comes from direct spade or manual labour as found in gardening.

In dealing with kinds and varieties of vegetables we have grouped them in different but, so far as practicable, allied sections. Thus the tap and bulbous roots are in one section; pod and fruit-bearing kinds in another; leaf plants in another; and in that way very wide ground is covered. The limited dimensions of our volume admit only of concise information; but still as a manual for those who may be seekers after sound gardening knowledge, what is here written can hardly fail to have interest and value.

SOILS, THEIR PREPARATION AND MANURING

It is an interesting fact that whilst we find soils of very different natures even in limited areas, yet all will prove, under proper cultivation, to be productive, though in varying degrees. For that reason we need not be captious as to whether the staple be chalk, gravel, sand, or even clay, as all can be made to produce good crops. The chief essentials are proper drainage, so that superfluous water, which excludes air and conduces to sourness, is removed; deep working, so that growing crops may have ample root room, and be enabled to utilise all the fertile elements as well as desirable moisture the soil may contain; and manuring or feeding, by which crops are furnished with those elements of growth without which nothing profitable results.

DRAINING GROUND.—It need hardly be said that a sour, saturated soil should not be selected for gardening purposes where it can be avoided, but if it be a necessity then one or two deep drains cut through the ground at depths varying from 2 feet to 3 feet, falling away to some outlet or ditch, should be made. The pipes must be firm and immovable, with several inches of very coarse rubble or stones over them, and on the top some heath, gorse, or quick hedge trimmings, so that the soil is not in direct contact with the drainage, which must be kept porous or open. It

is, however, of the first importance that the drains should have a free outlet for the water, as, unless that be the case, the labour and cost involved in making these will be wasted.

When land is waterlogged it is made so by the rain passing through it, collecting, and forming what is known as the "water-table" (1-1, Fig. 1.) too near the surface. This is obviated by effective drains (2) which prevent the water rising above them, a

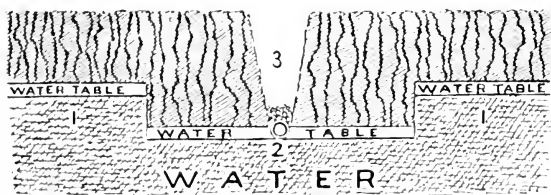


FIG. 1.—DRAINING.

1-1. Water. 2. Tile drain. 3. Grip through the soil.

greater depth of cultivable soil being secured. Open grips (3) kept clear for the free passage of water answer the same purpose.

Drainage, however, is often simply furnished by the mere breaking up of the subsoil deeply, and thus enabling excessive surface moisture to pass away freely into the strata beneath. It very often happens, where it has been the rule to break up for cropping only some 10 or 12 inches of the surface, that just beneath a very hard or impervious face of soil is found, through which water and air cannot easily pass from above or below. The mere forking up of a further 10 or 12 inches of such subsoil enables excessive moisture to percolate away

gradually and effectively. Such moisture serves to saturate the lower strata, and may in that way be stored for absorption by plant roots in hot weather when the surface soil is dry, and thus renders valuable service.

SURFACE DRAINING.—Where deep draining is difficult to carry out, as is often the case in allotments and cottage gardens, much may be done to mitigate the evil of excessive moisture in the soil, and especially of the formation of small ponds or pools of stagnant water, by opening surface drains, these leading into one somewhat deeper and wider that conducts the water to a ditch or other outlet. Drains of this kind occupy little space, and should always be kept open, as sometimes the flooding of gardens badly drained follows thunderstorms in the summer and does great harm. Trouble from lack of drainage may be, in special cases, much reduced by throwing the soil if it be stiff and heavy into raised beds. In that way every alley becomes when needful a surface drain, whilst the cultivated soil is made fully one-third deeper than otherwise would be the case

WORKING SOIL

IMPLEMENTS.—These should be of steel and kept bright by rubbing them clean and dry after use. Smearing them with paraffin or oil occasionally prevents rusting. The cleanest tools do the best work in the easiest manner to the worker. Those represented are : A, spade ; B, digging fork ; C, shovel ; D, potato fork ; E, manure fork ; F, mattock for breaking the surface soil and smashing lumps. All should be of the best quality, as cheap, inferior tools are dear in the end.

DIGGING.—Usually the first form of working soil

of any kind is digging. The term applies solely to the surface, and is seldom performed to a greater depth than 10 or 12 inches. Digging constitutes too much the common form of culture, because it is a simple process, rapidly performed. It suffices for the time, but commonly fails when the resources of soils are, especially in hot dry weather, severely taxed by heavy cropping. Even digging, which may be termed crude cultivation, varies much in merit. It is some-

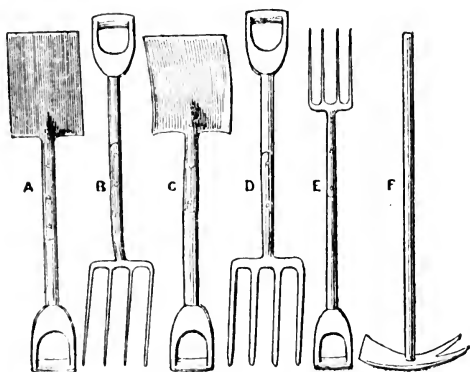


FIG. 2.—IMPLEMENTS.

times done as deeply as the tools employed will permit, and sometimes, we fear very often, it is badly done because the spade or fork employed is forced into the ground slantingly. When that is so the ground is turned more rapidly, it is true, but so indifferently that not more than 9 inches in depth is broken up. That is a scamping form of digging that should never be tolerated for vegetable ground. Spades and forks in digging should always be kept as

erect as possible, and in that way, if forced in to their full length, will turn up the soil as deeply and efficiently as well as can be done by digging only.

BAD METHODS.—Digging may be easy or laborious, just as the worker has knowledge or is ignorant of the proper use of tools and the methods of working. Thus in commencing to dig a piece of ground a common practice is to take out at one end a shallow trench, wheel the soil to the other end, and then dig the ground. The result is that the work is impeded by having so small a trench in front of the spade, and at the close of the work it is found that the end of the ground where the digging started is much higher than the end at which the operation is concluded, there being not enough soil in reserve to fill the trench, which has in the process become deeper. Added to that there has been useless labour expended in wheeling soil from one end of the ground to the other.

GOOD METHODS.—In digging a piece of ground the best course shown is to draw a shallow drill with a hoe, or other implement right down the centre, and then throw out a broad spit of soil so as to form a good digging trench across one half of one end, that is to say, from one side of the centre mark, throwing the soil to the corresponding end of the other half. Then in proceeding all that is needful is when the other end has to be turned, to keep digging most at the outer edge of the ground, and let the end of the centre mark be a sort of pivot, round which the trench should, as it were, swing, then as the reverse side is dug back, the soil that was originally thrown out of the beginning trench is there to fill the finishing one. Digging should, besides being deeply done, have all the lumps well broken, leaving a neat, even surface. It is just as easy to do work well as badly. Good

level work not only looks better, but enables planting and sowing to be done with greater regularity and facility, than rough and uneven surfaces will permit.

RIDGING SOIL.—This form of laying up subsoil is needful only when it is very stiff, or clayey. The object of ridging is to expose to the air the greatest possible surface of soil, as in that way it is more fully pulverised than is the case when the ground is level. A piece of ground to be ridged should either be first marked into thirty-inch widths by means of a line and hoe to mark the spaces, or else the operator should have a line and two sticks each thirty inches long. One of these at each side of the ground marks the required spaces to which as the ridging proceeds the line is shifted. Thus in starting at one side of the first space the needful trench is thrown out on to the adjoining ground, and then with spade or fork the soil in that strip is thrown into a ridge. Then with the next strip the ridging is reversed by working backwards, and in that way the first few spits from the strip fill up the trench left in the preceding one. Thus much labour is saved. After exposure to the frost and wind in the spring, these ridges should be thoroughly broken and pulverised, and the ground being forked over to make it level, it is in fine condition for cropping. In naturally low and wet positions, where the land cannot be effectively drained, it is an excellent plan to grow the crops on the ridges, as shown in Fig. 3, instead of levelling them in the ordinary way.

TRENCHING.—Whilst digging comprises the ordinary form of garden soil cultivation, trenching signifies improved or special culture. Its merits lie in the fact that owing to the greater depth of broken, worked, or cultivated soil, plant roots find more air and sweeter soil under such conditions; they have

double the ground area in which to run or ramify, and can thus find greatly increased stores of food for sustenance, and in the driest weather always find more moisture than can be found when the rooting medium is shallow. In all cases it is found from cropping experience that trenching ground practically doubles its productiveness over digging. There is, too, this great advantage resulting from trenching, that the extra deepening of ground is beneficial to

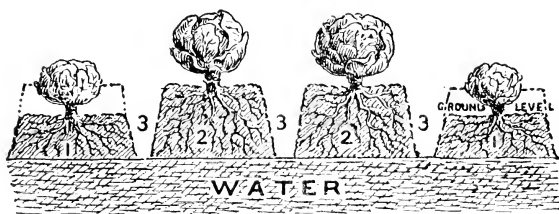


FIG. 3.—CROPPING ON RIDGES.

1-1. Shallow and wet soil. 2-2. Drier and deeper rooting areas obtained by throwing soil out of trenches.—3-3-3. With results.

several successive crops, so that the first cost of the work is spread over several seasons. All the same it is desirable that all ground that can be so worked be trenched every three or four years, as in that way the general value of the operation, as displayed in the crops, is greatly enhanced.

HALF TRENCHING.—In dealing with most soils it is at once the best as well as customary practice, to shallow trench at the first, as the incorporation of the crude and less fertile subsoil with that which has long been cultivated on the surface, and is fertile, must proceed slowly. The bringing of the crude and perhaps sour subsoil to the surface in bulk at once would

be bad practice and result in disappointment. If on the other hand, whilst the bottom or subsoil be well broken, the ordinary good soil be still kept on the top, then the newly broken subsoil will gradually become sweet, aerated, fertile, and eventually as good as the surface soil itself. For these reasons it is wisest to half or bastard trench ground at first; indeed it may sometimes be the case that because chalk, gravel, sand, or even brick clay forms the subsoil it

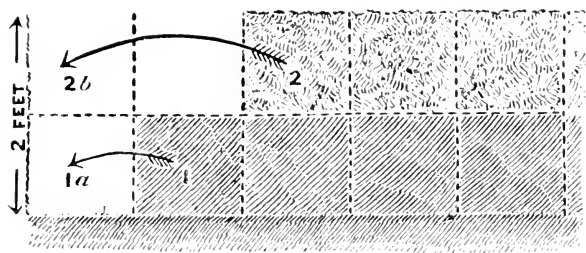


FIG. 4.—TRENCHING IN UNBROKEN SUBSOIL.

Remove the soil as shown in the three white sections and wheel it to where the work is to be finished, keeping the top soil of the two upper sections and the bottom soil of the lower section, separately, for filling in the last trench. Now turn Section 1 into Section 1a, then Section 2 into 2b, and proceed to the end. In this way the lower (subsoil) is kept at the bottom, the upper layer at the top, and an open trench maintained for working.

can never be brought to the surface. In either of these cases it is good practice to thoroughly break it up and render it as porous and fertile as possible, for in that way even the worst subsoils become gradually productive.

The work or process of half trenching may be simply explained. A piece of ground to be thus treated should have a line drawn, and a mark made down its length, and in the centre if of several yards

width. Thus if of six yards wide, the line would divide it into two strips each three yards in width. The operator would therefore proceed to mark out at the end of one of the halves a trench two feet wide and from out of that would be thrown the whole of the ordinary surface or dug soil, removing the loose portions also. Then with a stout, long-tined fork he will break up as deeply as possible the hard subsoil now exposed, level it, and leave it. If animal manure can be spared it is excellent practice to place a layer on this newly broken soil. Then marking out another trench two feet wide beside the previous one, throw from the second into the first the whole of the top spit of soil, thus leaving exposed the subsoil in the second trench. That should be broken and manured as before, and the same process repeated to the end of the strip of ground. Then the top soil from the opposite trench in the next strip should be thrown in to fill the vacancy left in the last one of the trenched part, and the other side trenched to the end, as the first side had been, the soil thrown out of the first trench being there to fill the vacancy. When ground has been so treated and manured in the winter, it is in fine condition for cropping in the spring. When, as is often the case in the winter, no other work is practicable, if the ground to be trenched has been covered with long manure, fern, or other protection, the trenching may proceed all the same. Digging or trenching should, however, never be done while the ground is very wet or covered with snow.

FULL OR DEEP TRENCHING.—This proceeds on very much the same lines as the preceding, but with this distinction, that through it yet another 10 or 12 inches of soil may be broken. This depth, however, is of value only where the lower soil is fairly good,

and will in time repay for the deeper cultivation bestowed on it.

When ground has not previously been trenched and it is desired to do so deeply, yet to avoid the bringing of any of the sub-soil to the surface, it is needful to adopt a somewhat laborious method. This we have endeavoured to show in a simple fashion in the illustration on page 11. It will be seen there that not only is the top spit of the first trench thrown right out, but that of the second also. Then the second spit of the first trench is removed too, and the soil beneath is deeply broken. In that way the soil may be worked to a depth of from 24 to 30 inches. Then the second spit of the next trench is thrown into the first trench, and on that the top spit of the third trench. That fills the first trench and the entire piece of ground has to be treated throughout in the same complete way.

Another form of deep trenching is more easily accomplished, but that can be done only when the ground has been previously trenched fully for some time. It is the practice that prevails in all high-class gardens. When a trench is marked out as before both the first and second spits of soil are thrown out and the bottom well broken. Then the top spit of the next trench is thrown into the bottom of the first, and the second spit is thrown on the top of it so that the position of these layers of soil is reversed. When ground is cultivable throughout and amenable to be treated as described its productiveness is remarkable.

We have thus dealt somewhat fully with the preparation of the soil because it is of such exceeding importance ; indeed, all success in cropping depends entirely on the labour put into the soil at the outset.

MANURING.

MANURES or plant food may be divided roughly into two sections: those that are natural and those that are artificial or chemical. All the same it is right to say that no manure is absolutely artificial so long as it contains in it the essential elements of plant life, but some are prepared by a chemical process, such as superphosphates of lime and sulphate of ammonia, and are extremely valuable. In a rough way too, we have used animal or natural manures with comparatively little certainty of their actual constituents of plant foods, but rather with knowledge derived from experience, having seen that their application to soils produced on crops beneficial results. As to chemical manures, these are easily subjected to an analysis, and thus we are enabled to ascertain their peculiar fitness for various crops, such as we grow in field and garden.

NATURAL MANURES.—These are from the various animals, house sewage, vegetable matter, such as leaves, garden refuse, ditch cleanings, and other sources, all being more or less useful, just as they contain certain constituents or otherwise. Animal matter combined with vegetable matter, such as straw and peat-moss litter, constitute the chief manures of this section, and whilst all have great value when fresh, yet they waste much by exposure to the elements, by bad storing or excessive fermentation. In all such cases the loss of plant food is very great, frequently one-half. A little fermentation of manure is good, provided that heating be checked early by turnings.

It is usually the wiser course to bury any of these manures in the soil whilst fresh, but where that cannot be the case, especially when the ground is

cropped, then the next best course to save from waste is to spread the manure thinly over the soil amongst the strong crops, such as Peas, Beans, Cabbages, and winter greens, as then the volatile food it contains is washed into the soil and appropriated by the crop. Vegetable matter is best employed when in a half-decayed condition, and especially when it has been utilised during the summer for the reception of house slops. All the same, every description of liquid sewage may be applied with profit to growing crops. Not a particle of refuse or a drop of sewage should be wasted, but all should be fully utilised in gardens. In some localities droppings collected from roads form the only animal manures obtainable. These are best laid in a heap, occasionally turned, and then dug into the ground whilst just warm.

SWEEPINGS FROM TOWN STREETS.—These also form valuable manures when properly stored so as to slightly ferment, then turned once or twice so that the ammonia liberated permeates as it were the entire heap, and in that condition dug into the soil. Cow and pig excreta are cool, moist, and retentive. These admirably suit light, porous soils, whilst horse stable manure answers well for stiff land. The latter, however, when rich in droppings from horses fed on corn, always has the highest proportions of plant food. It is not commonly known that manures lying in heaps exposed to rain and sun become lessened in value and usefulness the longer they lie exposed, whilst manures kept covered retain their properties till used.

CHEMICAL MANURES.—These include nitrate of soda, a very quick-acting soluble salt brought from South America; sulphate of ammonia, nearly as quick and more lasting, obtained from coal in the

manufacture of gas ; superphosphate of lime made from bones, fossils, or minerals ; phosphates and lime in the form of basic slag ; and potash, found in kainit and sulphate of potash.

Then we have soot, which is of great value ; lime, a sweetener of the soil and an indirect manure ; guano, the excrement of birds ; common salt, and others. All these are serviceable, especially in proportion to their purity. Chemical manures, especially the two first named, are not enduring in effect, sufficing chiefly for the crop to which they are applied ; but they are effective, can always be had, and now it is imperative that the dealers or merchants should furnish them pure, or otherwise they are liable to punishment.

APPLICATION OF CHEMICAL MANURES.—Superphosphate—This most valuable manure is best applied to soil prior to the sowing or planting of crops, and in conjunction with more or less, according to the nature of the crop, of potash salts. These need some few weeks' time to become thoroughly incorporated with the soil, or in a soluble condition to make them plant foods. Thus if applied to ground on which roots of any kind, such as Onions, Carrots, Beet, or Potatoes are to be grown, they should be turned into the soil a few weeks before seeds are sown or the tubers planted. Nitrate of soda is a very volatile manure, and should be applied to crops in the spring after they have made growth. This is a salt that, sown very thinly amongst the crops, soon washes into the soil and is at once utilised. These three chemical manures when thus combined furnish nearly all the food that plants require. The dressing must be varied according to the nature of the crop to be grown and the condition of the soil. Usually it is found wise to apply them

at the rate of 3 lbs. superphosphate, 2 lbs. kainite, and 1 lb. nitrate of soda per rod of ground. These manures should always be purchased in their pure or common state, and be applied when necessary. They are relatively cheap, and rarely is it the case that, properly utilised, they do not well repay their cost.

GREEN MANURES.—Crops such as Tares, Rye, Mustard, and Turnips, sown in the autumn, to remain over the winter and dug down in the spring, form cheap and admirable manures, especially for light or sandy land deficient in vegetable matter. Tares are the best of all, and if sown in the autumn and dug in during March after good growth has been made, will render the soil for that summer wonderfully fertile. There is hardly any form of green vegetable matter that, when partially decomposed, does not make good manure.

ROTATION OF CROPS.—By this is meant following on the same ground one crop with another of a very different kind, so that what manures the first crop has left in the soil may be utilised by the crop which succeeds. Thus it is a good plan for Potatoes to be followed by Cabbages or any kind of winter greens; Celery to be succeeded by Peas or Beans, and these again by autumn-sown Onions or Turnips, so that the ground carries crops as different as possible every succeeding season. Rotation in cropping is, however, very much governed by convenience, and, as an autumn crop is rarely of the same nature as a summer one, the rotation comes out all right without special foresight. Rotation must however be of such a nature that the ground shall be cropped in such a way that rows or lines run across the quarter and thus avoid patchiness. Thus in lifting early Potatoes row by row another crop can follow all across the ground at once, and thus preserve uni-

formity and neatness. It is in this way that cropping is made to be most profitable as well as creditable. It should always be the aim of the cultivator to have ground so far as is possible fully cropped, as when empty it is earning nothing. It is, however, difficult to crop directly after the lifting in September and October of the latest or winter crop of Potatoes.

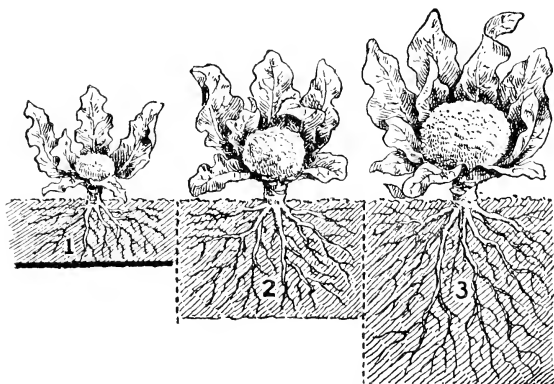


FIG. 5.—A LESSON IN LAND-WORKING.

1. Poverty. 2. Progress. 3. Prosperity.

It is these fallow pieces of ground that should be trenched in the winter, as we have previously advised, and if the total is one-fourth of the entire garden, and crops are so arranged that the late Potatoes come the succeeding year on a different piece of ground, it is evident that with such a system the whole of the land under vegetable culture would be thus deeply cultivated by trenching once every four years. The benefits arising from such a plan are incalculable.

POVERTY, AND PROGRESS AND PROSPERITY.—The foregoing remarks on preparing and enriching land for the cultivation of vegetables may well conclude with an object-lesson in which bad, better, and best methods are embodied. The illustration Fig. 5, represents with accuracy the difference in results (1) from poor and shallow worked ground; (2) improvement by deepening the land; (3) well trenched and adequately enriched soil. As all crops that may be grown are affected in a similar manner, according to the methods resorted to in their production, it is hoped the worst will be abandoned and improvement commenced forthwith, in order that the best results may be achieved by tillers of the soil.

TAP AND BULBOUS-ROOTED VEGETABLES

A MOST valuable section of crops is found under this heading, not only because generally such excellent food, but also because so enduring, furnishing supplies nearly all the year round. Especially are these roots serviceable during the winter, as when grown in quantity and properly stored, they furnish not only variety, but excellent diet for several months. All are specially nutritious. Beet is rich in saccharine or sugar; Carrots in phosphates; and other kinds have valuable properties. Beet may be partaken of only when fully grown. Carrots in various stages, even when they are small to full development. Parsnips are highly nutritious when fully grown and well cooked. Onions may be eaten raw as salading in a young state and are delicious when fully grown and baked or stewed in the winter. Celeriac is a very early and hardy substitute for Celery, and may be eaten either raw or cooked. Leeks properly blanched and boiled are very delicious as well as nutritious. Salsafy and Scorzonera roots well cooked are excellent vegetables. It is much to be regretted that the great variety and wealth of food we have in this section is by no means so entirely utilised as it should be; but that there is growing a strong liking for these products, there can be no doubt, and evidence is being afforded on

every hand that with the spread of a wider taste for gardening and greater knowledge on culture, will also arise a marked demand for vegetables, and their merits will become universally appreciated.

BEET.

This root is found both in tapering and round forms (Fig. 6). The distinctions in flesh are trifling,

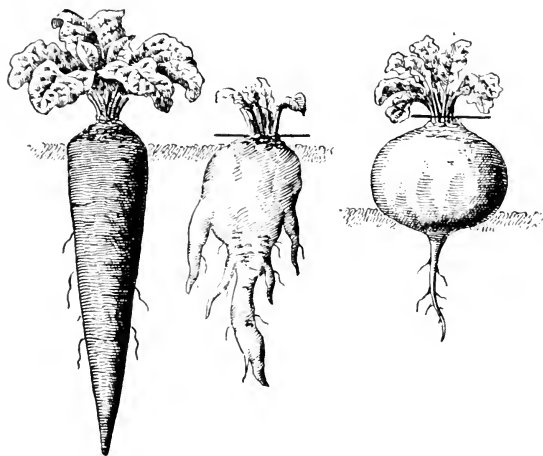


FIG. 6.—BEET—LONG, FORKED, AND GLOBULAR.

but in shape decided. The tapering roots are buried in the soil, those of the bulbous-rooted (really a swollen fleshy stem) being formed on the surface. The turnip-rooted Beet has the special merit of being much earlier to mature than the tapering forms; hence, if seeds be sown in April, the turnip-rooted kind will give good-sized “roots” in the summer, several weeks before the other roots are ready.

The best variety of globular Beet is the Red Globe, the flesh of the bulbs being of a fine texture and a deep red colour. The best of the main crop, tap, or long-rooted varieties are Dell's Crimson, known in commerce under other names, the roots of a rich blood-red colour, medium size, and, if well grown, very handsome. The leafage of a true stock is of a deep metallic red of pendulous form, and for that reason constitutes a pleasing foliage plant. Cheltenham Black has roots very clean, of good form, flesh almost black, of fine grain and highly flavoured. Foliage strong in rich soil and of a glaucous green colour. Does not require soil that is highly manured. Pine Apple is a good old market sort well adapted for field culture, flesh red, roots tending to large, but of useful size on ground of moderate quality. Foliage reddish and flattens out. Beet seed should not, as a rule, be sown before the end of April, as the young leafage is tender, and sometimes suffers from spring frosts, and is often eaten by birds. The tapering rooted sorts are frequently sown in May as they continue to make growth till late in the autumn, and the roots are quite large enough. Store them in sand and safe from frost after twisting off the leaves above the lines shown in the figure, not cutting off the tops below them. The rows may be 15 inches apart and the plants thinned early, 6 to 8 inches asunder.

The roots must be washed and boiled slowly until soft, but they should not be tested with a fork. Then, when cold and peeled, the flesh is most delicious, eaten with salad, cold meat, or cheese, some common condiments such as salt, pepper, and vinegar being added. It is hardly possible to write too highly of such addition to our meals as well-cooked Beet presents.

CARROTS.

Although all Carrots are tap-rooted, yet there are material differences in shape as shown in Fig.7. Thus the Early French Forcing has roundish roots, only 2 or 3 inches long, whilst the Long Surrey gives roots from 16 to 20 inches in length, thin and pointed. The first named is the earliest of all Carrots, and is chiefly used to furnish very young roots in a small state in the spring and summer from sowings made in frames on beds of manure or leaves and also on warm borders in February. Two or three small sowings of about 3 square yards, made in the spring furnish useful pullings. The rows may be 6 inches apart, and unless the seed is sown too thickly the plants do not need thinning, except for use.

Next in succession comes the Early Nantes, also known as the Scarlet Champion. This is perhaps the most generally useful early Carrot, length about 5 or 6 inches, thick and stubby. It is a first-class variety for sowing in March to give summer pullings, and when thinned, also well grown is good for summer exhibiting. This variety should be sown on warm soil in drills 10 inches apart, any time during March, if weather permit, and, when the plants are 3 inches high, be thinned out to 4 inches asunder. That will lead, in good soil, to the production in the summer of a handsome crop of roots. A sowing made on spare soil after early peas towards the end of July will give a crop of young roots to pull nearly all through the ensuing winter.

For the main crop for storing no Carrot is better than the St. Valery or Scarlet Intermediate. This superb variety seems to have displaced almost all others for the purpose. Gardeners find it the best winter variety, and exhibitors prefer it at autumn

and winter exhibitions, for its rich colour and handsome tapering form. Roots usually range from 10 to 12 inches long, having broad shoulders and tapering to a fine point. The flesh is, when properly cooked, soft, and nutritious. Seeds may be sown at the end of March or during April according to the weather and the soil. Drills should be $\frac{1}{2}$ an inch in depth

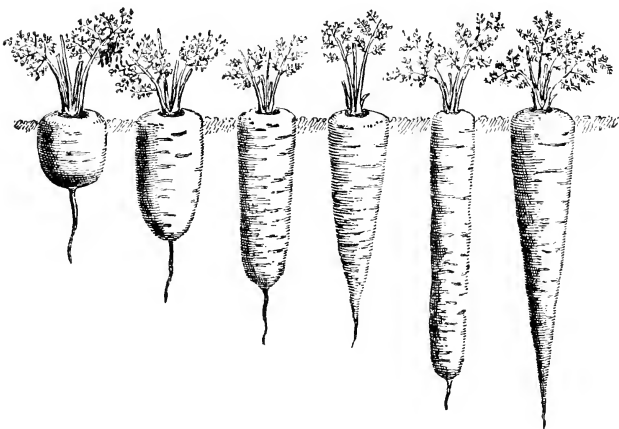


FIG. 7.—TYPES OF CARROTS.

French Forcing, Early Nantes, Long Horn, Intermediate, Long Coreless and Long Surrey in the order named.

and 12 inches asunder, the seeds being sown thinly. Thinning the plants to from 5 to 6 inches apart ought to be done early, loosening the soil as little as possible. With the plants well thinned it is only needful to keep the soil well stirred between the rows and free from weeds to ensure a good crop of roots.

All that has been previously written with respect to deep working of the soil applies specially to main crop Carrots if handsome roots are wanted. Strong animal manures, however, should not come into immediate contact with these or any other tap roots, as the tendency is to generate forked or side fangs as shown in the spoiled Beet-root, Fig. 6, page 21. Carrot seeds may be the more easily sown if mixed with an equal quantity of sand or fine soil and all rubbed together. That serves to separate the seeds and permit of their being easily and equally sown in the drills.

Besides the varieties already mentioned the French have a long Carrot that is called the Long Red Coreless. Its merit consists in the succulent nature of the flesh throughout, but its peculiar form—long but not tapering—does not commend itself to gardeners, though it is good both in shape and quality all the same. The largest Carrots are the Long Red Surrey, once so extensively grown for the London Market, but now much superseded by the New Intermediate; and the Altrincham, also a tapering form, always showing about an inch of the root above the ground, which is of a purplish green colour. This is a favoured form in the Midlands, but is very little grown in the South of England.

PARSNIPS.

It is almost a relief to know that of this most valuable winter root we have few varieties. Very slow progress indeed is made with its improvement. Some years ago Professor Buckman of the Royal Agricultural College, Cirencester, raised what was thought to be an undoubted improvement in the form of a hybrid product from the wild Parsnip and a garden variety. This was put into

commerce under the name of the Student. It is doubtful however if it differed materially from the best garden forms, and to-day it does not appear to present any distinct features.

One of the best Parsnips for all ordinary purposes is the Hollow Crown. This is a type that may be distinguished by the raised ridge of white flesh that is found on full-grown roots round the crown from whence the leaf stems spring. Hence its appellation.

The food or edible merits of Parsnips vary very much according to soil and cooking, but whilst the Maltese or the Jersey, both broadish, somewhat large roots, have their admirers, we prefer a good stock of the Hollow Crown. Parsnips specially appreciate the deep working of the soil as found in trenching, yet it is unwise to have the ground too rich, as big, coarse roots possess such a large proportion of water in their composition, whilst clean, fleshy, medium-sized roots are when well cooked much more mealy and nutritious.

The usual plan is to sow seeds, if the weather be favourable, early in the month of March. The seedlings are very hardy, and suffer nothing from spring frosts. Drills marked out at 14 inches apart across a piece of ground, then drawn with a hoe and line one inch in depth, do admirably. Seeds should be shown thinly, as to do otherwise is sheer waste. When the seedlings are about 3 inches in height, they must be thinned to about 6 inches asunder, but if specially large roots are desired thin to 9 inches apart. The after cultivation is simple. Keep a small hoe in frequent use between the rows during the summer without injuring the leafage of the Parsnips. The roots will be ready to lift for eating in October; and early in December, if it be desired, especially if the ground

lie wet or is close, the whole of the stock may be lifted and stored in dry soil or sand in a very cool, airy shed or outhouse. Where the ground is porous and well drained Parsnips may remain where grown all through the winter, as in that case they keep fresh and plump. It is, however, advisable to cover a portion of the bed with some litter or fern, so that in hard weather access may be had to the roots. Parsnips for exhibition should not be very long and slim, but rather have broad shoulders and fleshy roots some 12 inches in depth, handsome, white, and clean.

COOKING PARSNIPS.—The cooking of the roots is a matter that is almost universally open to improvement. Roots cut up and cooked in the old way are usually watery. If cooked as they should be, whole, scraped only and not peeled, just covered with water when in the pot, and boiled slowly for an hour or an hour and a half according to the size of the roots, by which time the water will have almost disappeared, they are most delicious—and more nutritious than when served in close watery slices.

SALSAFY AND SCORZONERA.

These are long, tapering roots, the former white and having narrow leafage, and the latter dark with broad foliage. These are raised from seeds sown thinly in April in shallow drills 10 inches apart on ordinary garden ground. When the seedlings are well up they should be thinned to 3 inches asunder and the hoe must be freely used amongst the plants in the summer. In the early winter the roots may be lifted and stored in sand or soil in a cool place, and if some be set thickly in warmth, in a dark place so as to push tender blanched growths these make good salading. The roots also, especially those

of Salsafy, when properly boiled and served with butter or gravy, are tender and delicious. They have been termed the Vegetable Oyster. The blanched tops may also be cooked in the same manner as Seakale.

HORSERADISH.

This is not a common root vegetable but is almost exclusively used as a relish or condiment. It is so desirable and healthful in this way that it is to be

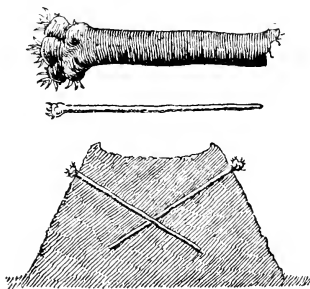


FIG. 8.--HORSERADISH IN RIDGES ; PLANTING AND THICKENED ROOTS.

regretted it is not more largely consumed. A common British root, yet it is strange to learn that our chief supplies for the Christmas markets are obtained from Holland, whilst it is certain we could easily grow as good at home. Horseradish is too commonly a neglected plant, the usual practice being to plant roots or crowns and then let the beds remain for several years, just lifting a root or two as needed. The proper course is to trench clean out the whole of the roots in the early winter after the leaves have died down. Then select and trim for use the finest roots, laying them in the ground so that they may

be had when needed. All the smaller roots of the size of a little finger, or even rather smaller if of several inches long, may be trimmed neatly, and then planted in a piece of trenched ground, 12 inches apart, those having crowns being just below the surface and those without crowns rather deeper. So planted, thick stems for use are produced at the end of the season.

Another method of growing fine roots, especially where the ground is shallow, is to form a ridge of soil 3 feet wide and half that in height. In the sides of this ridge dibble the small roots, not vertically but obliquely. Then when the growth begins if a shallow drill be drawn along the top of the ridge and liquid manure, sewage, or water occasionally poured into it the roots will be well moistened and make very strong growth. In the north fine roots are produced in this simple way and the crop is very profitable. The sets are a little thicker than an ordinary pencil, each having a crown. They are lightly scraped to remove incipient buds, and they then thicken in the ridges without producing side roots, which spoil so many "sticks" of Horseradish. They are inserted about 10 inches asunder, as shown in Fig. 8.

ONIONS.

Most certainly the Onion is the chief of all our edible bulbs. It is really a bulb in the botanical sense, as it is composed of a series of scales or layers of flesh whilst Turnips, Radishes, and others are but thickened or fleshy stems. Onions have hitherto been used chiefly for flavouring and the making of an excellent pickle ; but there has of late grown up a strong liking for these bulbs in a cooked state and as such, properly prepared and served, they constitute

wholesome and nutritious food. Hence the practice, now so common, of growing large, mild bulbs for this purpose. With the use of young Onions as saladings we have long been familiar; and most healthful and pleasant are they so used if fresh. Even sliced Onions of mild quality are acceptable as saladings mixed with Cucumber. Generally a good Onion crop is very profitable, and it is rare that a market cannot be found for the produce. We have seen instances

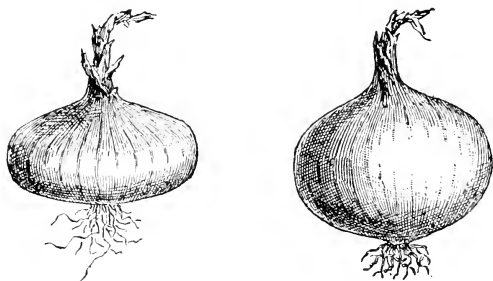


FIG. 9.—ONIONS; WHITE SPANISH AND MAIN CROP.

where Onions have been sold at 2s. 6d. per bushel and worth £100 per acre, but that is the result of deep trenching, high manuring, and the best of stocks and of culture.

Onions are commonly divided into spring and autumn sections. That is however a purely arbitrary division. Most, if not all varieties will do equally well if sown in spring or autumn, but there is a material difference in their keeping qualities, the soft Italian or Tripoli varieties soon collapsing, whilst the best popular sorts, will, if well ripened, keep for several months in a complete state of rest. These are invariably the best to grow, as the Onion is so

valuable as a food product during the long winter months, and it is of the highest importance to maintain a supply of the winter stocks from October till June.

The bulbs differ very much both in shape and in size, as may be seen by the reduced engravings, in which the relative proportions are maintained. Some are too flat, as the old White Spanish, and

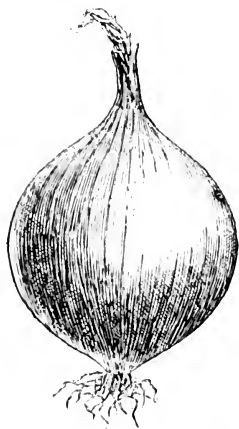


FIG. 10.—ONIONS ; GLOBE OR EGG-SHAPED

better shouldered forms are preferable as in main crop (see Fig. 9). Then we have the long keeping Globe or Egg-shaped referred to below and represented in Fig. 10.

GENERAL CULTURE.—Onions need ground not only well worked and manured but also firm. Thus a moderately stiff soil is better than is one very light and porous. When such soils as the latter have, of necessity, to be cropped they should be well trodden,

and thus so far made firm before the seeds are sown. Strong soils are best enriched with horse stable manure and light soils with that from cow-sheds. Pig manure should be well fermented if possible and decomposed before being applied to Onion ground, as it tends in its raw state to produce much injurious insect life. When the young plants are 4 inches in height and have been thinned, a very light dressing of nitrate of soda and soot helps greatly to force quick growth and thus enable the plants to tide safely over a somewhat trying period of life.

Drills for Onions that are to stand for the production of ripe bulbs should be drawn 12 inches apart and about half an inch deep. This is easily done by using a garden line to guide and a hoe to form the drills. Seeds should be sown more thinly than is customary. It is the rule to find four times more plants in the row than are needed, and oftentimes they are far thicker. That means great waste of seeds and much additional labour in thinning and in cleaning the beds. Once the plants have been thinned—and that work must be governed by what is desired in size of bulbs—it is only needful to keep the beds free from weeds by using a small hoe between the rows frequently and when the bulbs have attained a good size to gently bend down the plants so that leaf production is checked and the Onions are greatly helped in swelling. Good growers have the work done so neatly that all the tops are made to lie in one direction. This treatment is all the more needful in damp seasons when the plants have a tendency to make strong necks.

SPECIAL CULTURE.—In the race for improvement and in competition special Onion exhibitions have of late been held and prizes awarded for the heaviest bulbs. These are now so fine under the culture

adopted that they are often found to weigh from 2 to 3 lbs. each, sometimes more. Such bulbs could not be produced under ordinary culture. The special routine consists in sowing the seeds in shallow boxes in January, standing these in warmth in a frame or greenhouse, having the young plants when 3 inches in height carefully lifted and dibbled out about 2 inches apart into other boxes, using in them good turfy loam with which is mixed one-fourth of well-decayed manure and a little sand. When the plants are 6 inches in height the boxes are transferred to a cool house or frame for the Onions to harden. About the end of April, they are lifted with a good ball of soil and roots attached, and planted in deeply trenched and highly manured ground. The rows are 16 inches apart, the plants being 12 inches asunder in them. During the summer occasional dressings of nitrate of soda, soot, and guano are given, also in dry weather liberal waterings. It is thus that these huge exhibition bulbs are produced. A large proportion do not keep long, seldom indeed much later than the end of the year before they start into growth. They are, however, very mild eating and are highly favoured when baked or stewed whole.

AUTUMN-SOWN ONIONS.—These, sown towards the end of July or early in August, need much the same treatment as the spring-sown beds, except that it is usual to defer thinning until the spring. Some of these young Onions if transplanted early in April in fresh soil, often produce very fine bulbs early in the summer—at least thrice the size of the Giant Rocca, shown in Fig. 11.

TRANSPLANTING.—With respect to the transplanting of glass-raised plants in the spring the practice even for ordinary crops is good where the onion-

maggot prevails. Seeds may be sown in boxes in March or April. They soon germinate under glass, and when the plants are 6 inches in height and have been well hardened they may be dibbled in good ground, 4 or 5 inches apart, in drills 12 inches asunder. Being hard, the maggot rarely does them

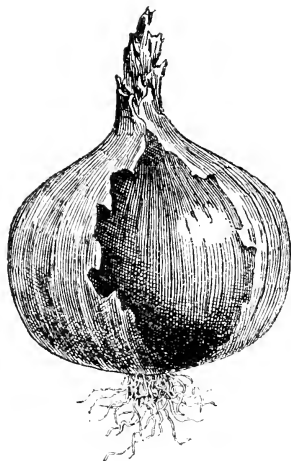


FIG. 11.—ONION; GIANT ROCCA.

harm. If the labour be at the first considerable there is much saving later in avoiding thinning. In transplanting care must be taken to preserve the roots and to let them well down in dibbling, but the stems must not be buried.

STORING ONIONS.—Obviously the prime consideration in the keeping of Onions is that they be well matured and dried. Next they should be rubbed through the hands and roughly cleaned, then roped

by being tied to stout sticks first covered with straw—these may be of lengths ranging from 2 to 5 feet—and then hung in a cool dry place. The bulbs also keep well lying thinly on shelves in a dry airy shed, or they may be kept in wicker baskets through which ample air can circulate and prevent heating. It is usually found that the globe or egg-shaped sorts are the best keepers, and it is therefore well always to grow a fair quantity of these for that special purpose. No amount of frost will injure Onions if they are firm and dry.

VARIETIES OF ONIONS.—For pickling purposes the small Silver Skin (Fig. 12) is most commonly grown, sown in a patch quite thickly, in poor soil in the spring. For the growing of very early bulbs from spring sowings the White Queen is an admirable variety. This is very precocious and produces bulbs, not large but very useful, early in the summer. For main crops the selection is infinite, and it is impossible to name a tithe of the varieties that are catalogued. Main Crop, Rousham Park Hero, Ne Plus Ultra, Sutton's Globe, Cranston's Excelsior, James' Keeping, and Crimson Globe, are all first class, the four varieties last named being of the egg-shaped type that keeps so well. For exhibition purposes under special culture Ailsa Craig, Sutton's A1, Anglo-Spanish, Lord Keeper, Excelsior, and Inwood Favourite are amongst the heavier and finer. The Italian or Tripoli varieties are numerous, but the best are Giant Rocca, Globe Tripoli, and Leviathan.

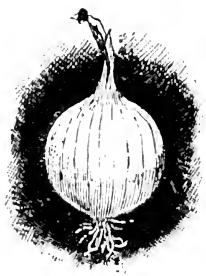


FIG. 12.

SHALLOTS.

These are closely allied to Onions, especially the Potato Onion now so seldom grown, yet useful. A cluster one-third natural size is shown in Fig. 13. Small bulblets should be planted early in well prepared soil, in rows 12 inches apart, the bulbs being 8 inches asunder in the rows. From these small bulbs break out numerous others until during the summer quite large clusters are formed, and when ripe are pulled, dried, and stored. They need other-

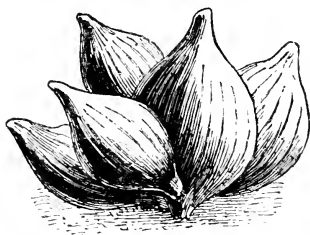


FIG. 13.—POTATO ONIONS.

wise simple culture such as being frequently hoed to keep the soil clean. The common Shallot is the smaller, but by far the nicer for flavouring, as it is of a pleasant, delicate nature. The large or Jersey Shallot is reddish and of coarse texture. It is not so highly favoured as is the other variety. It used to be the custom of cottagers in some districts to plant Potato Onions on the shortest day, December 21st, weather permitting, and take them up on the longest, June 21st; but in very early spring planting both of these underground Onions and Shallots answer equally well.

LEEKs.

These, though allied to the Onion, are not in the ordinary sense bulbous plants. The mode of culture adopted is specially intended to encourage the production of stout, long, thickened stems rather than bulbous bases. These stems when blanched white and clean are very delicious if properly cooked. There are few forms of the Leek, the best known being the Lyon, and Prizetaker or Champion. Seeds should be sown in March in a pan or box and stood under glass. When the plants are strong they may be transplanted into other boxes or in a frame or even in well prepared soil out of doors. If put out 6 inches apart they will grow very strong, and may then be moved with good balls of roots into trenches prepared as for Celery, and at once partially earthed. Then, as the stems grow, the lower leaves may be removed and more earth given until in the winter a high ridge is formed. Plants thus grown furnish stems from 10 to 12 inches long. It is well to place a little loose strawy litter about the ridges in hard weather to prevent injury from frost. Leeks may also be grown by sowing early in a warm position outdoors, subsequently dibbling the plants into rows, letting them 3 or 4 inches into the soil and drawing a few inches more to them for blanching as the stems elongate. In that way smaller but very good white Leeks are produced.

CELERIAC.

A very distinct vegetable is this, and very hardy. It will often endure, when earthed up, hard weather that kills ordinary Celery. The plants instead of producing long leaf stalks for blanching create a

swelling of the stem (Fig. 14) just on the surface of the soil, as is the case with Turnips. Sliced it is admirable as a salading, and when stewed forms an excellent and wholesome dish. Seeds may be sown in a shallow pan in March, stood in a frame, then the seedlings pricked out in a prepared piece of ground

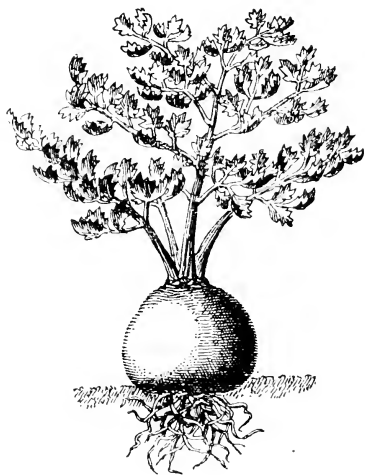


FIG 14.—CELERIAC.

out-doors or under hand-lights, and from thence transplanted later a foot apart in rows 18 inches asunder. If the ground has been previously well manured and liberal waterings be given as needed, an abundant crop of fine “bulbs” will be produced and may be used for flavouring early in the season.

TURNIPS.

The prejudices of taste favour white Turnips almost exclusively. Formerly the Swedish Turnip with its soft, marrowy, yellow flesh was much liked, but now it is little consumed although nutritious, whilst its young tops in the spring are outdoors sweet and tender eating, or when blanched in a dark place as nice as Seakale. A few rows of the Swede Turnip may with advantage be grown in gardens, if only for producing young sprouts in the spring. In the north the yellow-flesh Orange Jelly or Golden Ball Turnip, a golden-fleshed counterpart of Snowball, is held in high esteem. That, too, is very rich and deliciously flavoured, but the colour does not in the south take the popular fancy.

Of white-flesh Turnips we have many, but for garden culture about three suffice. Earliest of all we have the Extra Early Milan, that turns in easily on good soil in about six weeks from the sowing. This variety remains good only a couple of weeks or so, and it is advisable to make sowings of very small areas, just a few drills every fortnight from the middle of March to the end of June where Turnips are in great demand. To follow none is better than the Early Snowball, a pure white variety, sowings of which may be made in July and August for autumn and early winter pullings, whilst a good sowing of the Red Globe, a larger and hardier variety, made the third week in August, gives ample produce for the latter part of the winter and for storing till spring.

CULTURE.—This is simple, and ground is seldom specially prepared for them. They form admirable succession or catch crops, and do well on ground that is of fair fertility. If after the previous crop has been removed the ground be forked over and levelled

it is good practice to draw shallow drills 15 inches apart, sowing the seeds thinly and evenly. In that way not only is a regular plant ensured but less seeds are needed and the thinning out work afterwards is greatly simplified. The early sorts, especially the Snowball, need but moderate thinning, but the Red Globe should be cut out to 8 inches apart. With the varieties named and making successional sowings Turnips may be had nearly all the year round.

TUBEROUS-ROOTED VEGETABLES.

THESE constitute a very limited section, consisting almost exclusively of Potatoes and so-called Jerusalem and Chinese Artichokes. Potatoes occupy the premier position amongst vegetables, and are easily had all the year round; indeed, the tubers occupy the unique position of constituting a permanent dish on our dinner-tables. We may and do tire of other vegetables, but of good Potatoes never. Whilst vegetables generally, used in the aggregate, are regarded as valuable foods, the Potato is such of itself, ranking perhaps next to wheat in bulk and value.

A native of South America, and of a comparatively hot climate, no methods of culture or efforts in raising hardier varieties by cross fertilisation have changed its exact nature. It is still a tender plant, most liable to injury from low temperatures, and hence its season of growth in this country is comparatively short. We may not plant tubers in the open with assured safety until the month of April, for very often the tender tops are cut to the ground by one late spring frost, and in such cases irreparable injury is done. Except where situation or some shelter affords favourable conditions, it is not well to plant tubers until there is good reason to assume that the young and tender tops will escape the frosts of May. When they do so, the growth is both rapid and healthy, and

under such conditions far better crops result than could otherwise be the case. Even where the well-known Potato disease spares the stems and leafage, it is seldom that good growth can be secured later than the end of September, so that even for the latest and strongest kinds not more than four months practically constitute the growing season. As a rule, however, this is further restricted, because only where special efforts are made through the agency of anti-fungoid dressings of the leafage to ward off disease can the tops be preserved in health after the end of August. Where such is the case—and it is the common case—we find not merely is the tuber development arrested, often thus causing from that source alone a loss of one-fourth of the anticipated crop, but also the edible quality of the tubers is materially depreciated, as the process of converting the flesh from sappy texture into solid starchy compounds is checked also. For that reason even our best Potatoes seldom reach their highest flavour and cooking qualities. All these things serve to show at once the difficulties which still surround Potato culture, and the great need there is for sound judgment, not only in planting and cultivation, but also in utilising those disease-preventive compounds which science has devised for our benefit.

POTATOES FROM SEEDS.

Although all existing varieties, and hundreds of others now out of cultivation, have been from time to time originally raised from seeds, yet is it undesirable to trust to seeds for Potato propagation. Only a few varieties seed naturally, the greater proportion producing flowers in abundance, but having little or no pollen in their essential organs, fail

to set the blooms. This deficiency of pollen arises chiefly, no doubt, from the exceedingly heavy tuber production of the best sorts, and pollen is thus prevented. When it is proposed to inter-cross one variety with another, for producing seedlings of a distinct character, pollen has to be obtained, sometimes at considerable trouble, from flowers of a desired variety, and applied to a few blooms of the seed parent variety by dipping the pistils of these blooms into the fine flowery pollen which may have been obtained.

When flowers have thus been set they soon form seed-balls. These should be encased in a piece of muslin, to catch them when they fall. The stem should also be tied to a stake and have a label showing the nature of the cross attached securely to it. When ripe, these seed-berries may be gathered, placed in a small box, and put on a shelf in a room or greenhouse, where during the winter the pulp will decay and leave the seeds only. These may be rubbed out dry and be kept for sowing in shallow pans or pots early in April, and of course under glass.

The seedling plants, when four inches in height, should be pricked out thinly in other pans or boxes, and later be hardened by exposure in a frame. At the end of May they can be transplanted into rows two feet apart in the garden, where according to constitution they will make strong or weak growth and produce tubers to save for seed in the autumn. Possibly only ten out of a hundred may be worth saving, and after another trial the following year they may be reduced to four or five. If these be really distinct from other varieties, and good, a fair reward for so much trouble will have been obtained.

SEED-TUBERS.

This term is applied to tubers of any variety saved expressly for planting. They are not "seed" in the proper sense, but serve the same purpose, and indeed are better than true seeds. We have such an immense number of varieties in cultivation, and these are being added to every year, that it is most difficult to make small selections. Then varieties often disappear entirely after some ten years or so; and for practical purposes it is useless raising potatoes from seeds to secure crops when we have tubers of the finest sorts at our hands.

When seed-tubers have to be purchased, it is best to obtain them, if possible, in the early winter, before cold is severe, as there is undoubted advantage in having the sets under control all the winter, that they may be properly stored so as to secure all their best properties. If seed-tubers be taken from home-grown stock, they should always be selected in the autumn and stored apart from those for eating. For seed none are better than those which are of the best form and clean. They should range from three to four ounces in weight, as such tubers planted whole give the heaviest produce. When thus selected they ought to be placed, with the crown or bud end upwards, closely in shallow boxes (Fig. 15), each containing about 14 lb. of tubers. The sides of the boxes may well be an inch lower than the ends, so that when of necessity they are stood one on the other air can circulate among the tubers. The best place for the storing of seed Potatoes is one which can be made absolutely frost-proof, yet where abundance of air can be furnished and a good amount of light provided. They are kept in out-houses, cellars, and rooms,

though if frost is not excluded they will certainly be destroyed. Too much care cannot be taken to avert that calamity. When danger from frost is over, the boxes may be stood out in light and air; in that way the shoots which will in the spring extend from the eyes will be stout and firm, affording good help to growth and cropping. Where specially fine tubers (Fig. 16) are desired, and time can be afforded, it is a good plan to remove with the point of a sharp knife

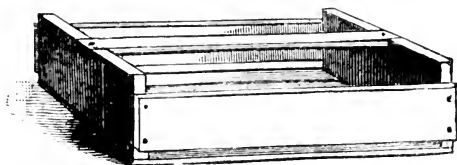


FIG. 15.—BOX FOR SEED TUBERS.

Length 18 inches; width 12 inches; depth 5 inches. Ends $\frac{3}{4}$ inch board; sides $\frac{3}{4}$ inch; bottom $\frac{1}{2}$ inch. When the boxes are piled air can circulate under and over the tubers. They can be carried in the box direct to the planting ground.

all but one or two of the stoutest of the shoots before planting. The sets may be taken to the ground in the boxes and be planted direct from them. Cut sets should be used only where unavoidable, but in all cases each portion must be from 2 oz. to 3 oz. in weight, and the wounds dried before being placed in the ground. Some growers dust them with lime to expedite the healing process.

POTATO MANURES.

BURNT REFUSE.—A fertiliser of a very simple nature and easily produced is through the burning of any description of vegetable matter, with or without the addition of soil. Wood ashes contain valuable potash,

and burnt hedge trimmings, mixed with weeds, garden refuse, road or ditch trimmings, partially dried, then formed into a heap and smouldered, serve to make a capital dressing. This material is best applied by strewing it in liberally with the potato

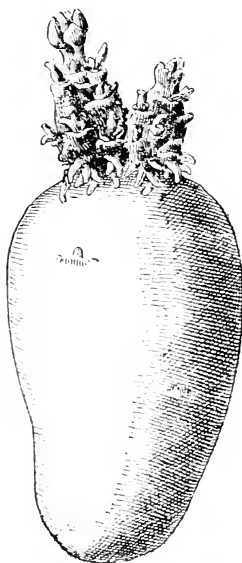


FIG. 16.—WELL PREPARED SEED TUBER.

sets in the furrows, or, where dibbling in is practised, over the holes, and well hoeing it in. Soot may be mixed with it with great advantage. It is usually found where dressings of this nature are freely applied that not only is the yield of tubers increased but the potatoes have very clean skins.

DECAYED REFUSE.—All forms of vegetable leafage, but especially from trees if well decayed, make a good natural dressing for potatoes. If accumulated during the preceding summer and autumn, stored in a heap during the winter, and occasionally turned, so that by the spring the whole is well decomposed, a sweet and admirable manure is formed. Roadside trimmings may be put in a heap to decompose, be frequently turned, and have a moderate quantity of soot intermixed. The addition of horse droppings from the roads improves the texture of the heap and adds to its fertility.

ARTIFICIAL MANURES.—These are readily applied when planting is proceeding, as by the time the tubers put forth shoots, and roots are emitted, the less active manures are becoming soluble and available. Superphosphate of lime, kainit, and nitrate of soda obtained in the pure state, then mixed in the proportion of equal parts and applied at the rate of from 5 lbs. to 6 lbs. per rod, constitutes an excellent potato dressing. Ordinarily it is best however to apply the superphosphate and kainit when the ground is being prepared for planting, sowing it lightly along the furrows or drills, following with nitrate of soda between the rows where the plants are well through the ground, and hoeing it in. If the season be showery such dressings are very beneficial. Even in dry weather the soda helps to attract and retain moisture in the soil.

LIME DRESSINGS.—Whilst of little value in poor soils, yet lime renders useful service when applied to soils that have from long rich manuring become highly charged with humus or vegetable matter. Soil constantly dressed with strong animal manure has a tendency to promote excessive haulm growth in potatoes, not always allied to good tuber produce.

tion. For that reason lime applied by placing it in heaps—a bushel to two rods of ground—in February covering each heap with soil, then when fully slacked, which is done in a few days, spreading the whole equally over the ground and digging or forking it in at once, constitutes a cheap and valuable dressing.

PLANTING.

Except where it is possible to afford some special protection to the young plants, as on warm borders (in which case tubers may be planted in March), it is unwise to place them in the ground very early, lest frost should destroy the plants, as previously indicated. The best average time for planting Potatoes, earlier or later according to the locality, is from the middle to the end of April, as then the tops are rarely through the ground until danger from frost is past.

Methods of planting differ according to circumstances. Thus where convenient the work may proceed as the ground is dug, putting the tubers in furrows cut out by the spade, at proper distances apart. Then the ground may have been prepared in the winter, and at planting either have deep furrows drawn by a large hoe for the tubers or shallow trenches thrown out a few inches wide and deep with a spade, the soil from the next trench burying the tubers in the preceding one. Again, sets may be planted in prepared soil by dibbling, using for this purpose a large Potato dibbler (Fig. 17), making holes equi-distant in the rows and about six inches deep. The sets are placed carefully into these holes and covered in afterwards by means of a hoe. In the case of very stiff soil it is good practice to have the ground during the winter thrown into sharp ridges some thirty inches wide, then in the spring forking

and breaking up the furrows deeply, drawing along them deep drills with a hoe, planting the tubers, and forking in the ridges to fill and cover the sets. All such work should be done when the surface of the soil is dry.

Potatoes should never be planted in wet, undrained soil. Where it is of a stiff clayey nature, it ought to be dressed in the autumn with fresh long stable manure, then be thrown into ridges as advised, as in that way it becomes aerated and pulverised. Where needed and practicable, it is a good plan to have all Potato ground trenched some two feet in depth, keeping the subsoil where it was, but forking it up deeply and burying into it some fresh or semi-decayed animal manure. This greatly helps to sustain the plants during hot, dry weather. Even where manure is not added, the previous crop having been well dressed, the value of deep working by trenching cannot be over-estimated. It is almost of greater importance that light porous soils should have the deepest working, to secure ample root-depth and moisture during the summer months. Still, much consideration must be given to the subsoil, and, if of gravel, sand, or chalk, keeping it well down, though all the same greatly loosened.

WIDTH OF ROWS.—As it is customary to plant Potatoes in blocks, the need there is for giving the inner rows ample room and light is too often overlooked. Ordinarily for varieties that are early or make tops of moderate height, 2 feet constitutes a

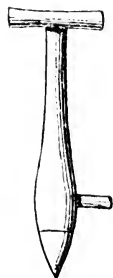


FIG. 17.—POTATO
DIBBLER.

Length 2 ft. 9 in.
Diameter at the
treddle 4 inches
or 8 in. above the
iron shod point.
Handle 1 foot.

very good average width between the rows, the sets being about 14 inches apart in them. In the case of strong growers, whose tops range from 2 feet to $2\frac{1}{2}$ feet high, the width between the rows should be from 27 to 30 inches, and the sets in the rows 16 inches asunder. In exceptionally good soil, and where growth is very robust, it is better to have the rows even a yard apart, for all the space and air are needed. Comparatively thin planting helps materially to promote healthy growth and heavy crops of tubers, the ample exposure of the leafage to the sun and air enabling the tubers to be far more perfectly matured than is the case when the tops are crowded.

HOEING AND EARTHING.—As soon as the tops are well through the ground the hoe should be freely and carefully used, not only to destroy, or better, prevent, weeds, but also to render the surface soil thoroughly friable. This work may well be done twice at least on fine days before earthing. Where rows are crowded, earthing is usually done at the expense of the roots, as it is needful to go deep to find enough soil for the purpose. There, again, an evil arises from too close planting. Greater breadth between the rows enables sufficient soil to form a ridge some 4 or 5 inches deep to be drawn up to the stems. The work ought to be done when the tops are about 6 inches in height, and with so much care that the hoe does not break or injure the leafage. The soil should be brought up close to the stems (A, Fig. 18) on each side so as to support them, to well bury the newly forming tubers—which must on no account be exposed to the air (B)—and also to throw off heavy rains from contact with the tubers and into the furrows between the rows. Rain, when the spores of the disease are active on the leafage, no doubt

washes them down into contact with the young tubers, and thus promotes disease in them.

PROTECTIVES EARTHING.—This practice is advised by Mr. Jensen, an eminent Swedish botanist, for the above reason. He advises that Potato rows should be a good width apart, and an extra moulding given when the growth is strong, a couple of inches or so

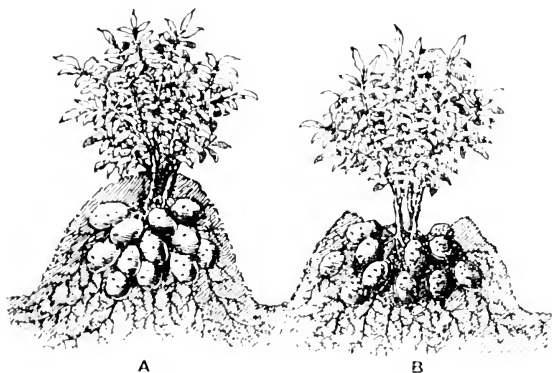


FIG. 18.—EARTHING POTATOES.

of soil being drawn up flatly on one side, the stems depressed over on to it, and then earthed up on the other side freely with a fork, so that instead of standing erect they lie partially on their sides. The ridge of soil formed by the forking thus coming immediately over the tubers protects them from contact with the disease spores. A similar method was practised by a colony of cottagers in Lincolnshire forty years ago, and was found to preserve the tubers from disease, but entailed considerable labour, and never became common in that great Potato-growing county.

ANTI-DISEASE DRESSINGS.—With the discovery of

the now famous Bordeaux Mixture has come into use the first real means of successfully combating the Potato disease. This mixture usually consists of equal quantities of sulphate of copper (blue stone) and of fresh unslaked lime. These should be placed over night in separate vessels with sufficient water to thoroughly dissolve them, so that next day, being poured into a large wooden vessel and mixed, they can have added a certain quantity of water. Thus, if 5 lb. of each ingredient be dissolved, the proportion of added water should be about 20 gallons. When thus mixed the solution should be of a pale blue tint. Some treacle, about a pound, may be added to make the solution adhesive, but it is not an indispensable ingredient. The proper time to give the Potato tops a first dressing is usually about the middle of July, but if the disease-spot appears it should be applied earlier. The best method of application is by the aid of a knapsack sprayer carried by the operator on his back, and from which a tube at the bottom conveys the liquid through a spreader in a mist-like form, resting like dew on the Potato tops. The work is best done towards evening, and when the weather is dry and quiet. A second dressing may be given about ten days or a fortnight later. If properly done, and with sufficient frequency, the result should be saving of the leafage and stems from the disease-spots for some three or four weeks longer than is the case in ordinary seasons with undressed breadths ; consequently more starch is manufactured by the leaves, heavier crops of more or less sound tubers resulting. In the case of late or main crop breadths the gain through properly applied dressings has been from 20 to 30 per cent. of produce. Some persons apply the antidote in powder form, and find it useful.

LIFTING THE TUBERS.—Except where needed for immediate use, it is best to leave the tubers to become as ripe as possible before lifting, choosing fine days so that they may be stored dry. Care should be taken in lifting, not to injure the tubers, but to place the fork well under and throw them all out on to the soil. It is well to allow them to lie on the ground for a few hours to thoroughly dry, and if soil adheres to them it should be removed as much as possible in picking. The larger or edible tubers may be collected first; then the second size and handsomest, for

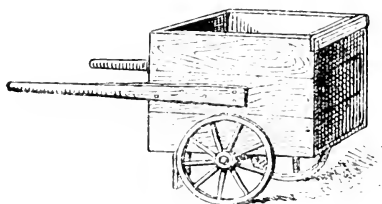


FIG. 19.—BOX-BARROW.

Length of box 2 feet; width 1 foot 3 inches; depth 1 foot 4 inches. This size will carry 2 cwt. of soil, and the wheels pass through a gate 20 inches wide. Back movable for easy discharge of contents.

seed; the refuse being taken last, and utilised for pigs, poultry, or in other ways. The tubers ought to be gently handled—pitching them roughly into baskets, or shooting them as roughly into bags, being a vicious practice leading to subsequent deterioration and loss. A box-barrow (Fig. 19), which a cottager can easily make or obtain, is useful for conveying produce to and from allotments.

STORING.—This must of necessity be done according to circumstances; but it is a good plan to make heaps of the best tubers in a shed or outhouse, covering them thickly with straw to exclude air,

allowing them to remain so for a month ; then again going over them, removing all diseased or damaged samples, and consigning the best to closer quarters in pits or clamps outdoors where they can be kept dry; or in large boxes or tubs, or heaps in cellars, where frost as well as light and air can be fully excluded. During the winter all stored Potatoes should be overhauled every few weeks. Remember that for eating the tubers should be kept in the dark, those for planting being better in a light position.

EXHIBITING POTATOES.—The practice of growing Potatoes to give specially handsome tubers for exhibition is common, and on the whole it is wisest to plant selected sorts separately for that purpose. The sorts should be early or late according to the time of year when needed, and the planting tubers whole, of some 3 to 4 ounces in weight, disbudded to one stout shoot, and planted in highly prepared soil, having ample room. In lifting use the greatest care to prevent harm being done to the tender skins, as these should be free from all bruises or blemish. Select as lifted the handsomest though not necessarily the largest tubers, place them in a basket carefully, carry into a shed and put each one into a covering of soft paper, and keep from light and air until needed for showing, when they should be gently washed in tepid water, dried with a cloth, repapered, and so carried to the exhibition. Care of this description is amply repaid, if the tubers be good, by the success attendant on it in the securing of the coveted prizes.

VARIETIES.—These are very numerous, and constantly increasing. High prices indicate scarcity, not, necessarily, superiority.

For *Table use* it is prudent to retain varieties of

proved value in any particular locality, at least, until others are found, after fair trials under the same conditions, to supersede them.

First Earlies.—Ashleaf, Ringleader, Duke of York, Sharpe's Victor, and Sutton's Harbinger are typical.

Second Earlies and Mid-Season onwards.—Sir John Llewellyn, Puritan, Ninety-fold, Royal Kidney, Windsor Castle, and British Queen.

Later (Winter and Spring) Varieties.—The Factor, Up-to-Date, Duchess of Cornwall, Evergood, and Sutton's Discovery.

For *Exhibiting*, selections of the foregoing, according to the shape required, are suitable, as also, among others, are the following:—

White Rounds.—Snowball, Syon House Prolific, Cigarette, and Northern Star.

Coloured Rounds.—Reading Russet, King of the Russets, The Dean, and Conference.

Coloured Kidneys.—Beauty of Hebron, Prizetaker, Reading Ruby, and King Edward VII.

ARTICHOKES.

The tuberous-rooted (*Helianthus tuberosus*), fancifully called the Jerusalem Artichoke (Fig. 20), has very tall stems, often reaching to a height of from 7 to 8 feet. This vegetable is propagated solely by tubers. These should be of medium size, and planted in deeply dug and fairly manured soil in March, in rows $2\frac{1}{2}$ feet apart, and the sets 15 inches wide in them. They may be planted 4 inches deep with an ordinary Potato dibbler. The free use of the hoe amongst the stems during the summer is the chief labour required. In the autumn, when the

stems die down, they may be removed, and the tubers lifted, sorted, and stored in ashes; or they may be dug as needed, care being taken to have a portion of the bed protected by litter in hard weather. The flesh of the tubers is of a soft, waxy nature, and the flavour is much appreciated in soups. The tubers are also esteemed by many persons served as a dish.

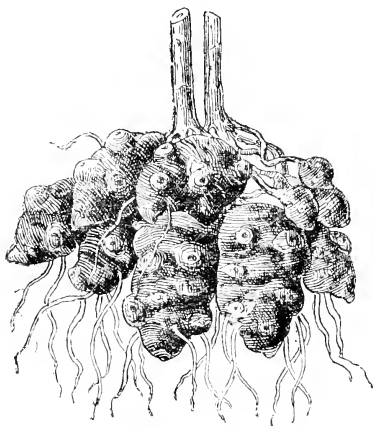


FIG. 20.—JERUSALEM ARTICHOKEs.

Artichokes contain no starch, and therefore cannot be boiled floury like Potatoes, but embody a considerable amount of sugar, and are wholesome. The white-skinned variety now much grown is better than the red.

STACHYS TUBERIFERA.—This is the Chinese Artichoke, and is also hardy, but of very dwarf bushy growth, and small long-pointed, corkscrew-shaped tubers, pure white in colour. This form likes good

deep soil, the tubers being planted in March, 12 inches asunder, in rows about 20 inches apart. The dense top growth soon covers the ground. Tubers in the autumn and winter may be lifted as needed, and thrown at once into water, to remain until finally washed; then gently boiled, dried off, then fried for a short time; so served they make a delicious dish.

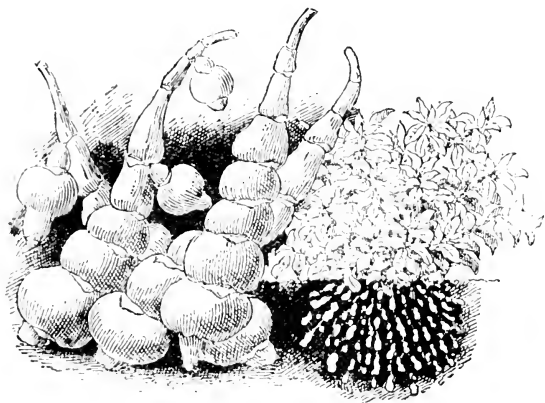


FIG. 21.—CHINESE ARTICHOKEs.

The tubers are best left in the ground until needed. Kept from the air they remain white, and if properly cooked make an agreeable vegetable, distinct from all others, and usually much appreciated.

POD-BEARING VEGETABLES.

STRIKINGLY diverse in every respect from roots are all those vegetables which produce edible matter in the form of fruits, as found in the seeds of Peas and Beans, or in pulpy matter, as evidenced in Tomatoes, Cucumbers, and Vegetable Marrows. Whilst those roots referred to in the preceding chapters give their produce chiefly in the winter, the pod or fruit-bearing vegetables are essentially of summer growth, most of them finding a somewhat short season in which to perfect their fruit, some being very tender others more or less hardy. Young plants of Peas, for instance, will endure an average British winter without harm. Still, late spring frosts often do great mischief to the flowers, and in that fact we realise that, after all, even Peas may be classed as somewhat tender plants.

Broad Beans constitute the most hardy section of these pod-bearers, but they are only relatively so, as hard weather often seriously injures the young plants. Generally speaking, seeds may be sown with comparative safety in January, but February is a common month for sowing, and it is unwise in the southern districts of the kingdom to sow later than the end of March, as the plants are so susceptible in heat to attacks of black aphid, whilst the flowers also become blind. Peas may, where soils

are retentive, be sown as late as the end of June, but there is much risk attached to later sowings.

Kidney Beans are essentially tender. They thrive only in warmth, and, if well sustained by moisture and a deeply worked soil, suffer very little from heat in summer. These Beans, whether climbing or bushy, rank amongst the most valuable hot-weather vegetables that can be grown. They are, however, cut down by an early autumn frost, when perhaps in the height of cropping. Where it is practicable, it often pays, after the middle of September, and the temperature falls, to furnish some protection to rows of tender Beans, as they are then saved for some three or four weeks' later bearing.

Dwarf Kidney, or so-called French Beans, if tender, or perhaps because they are so, prove singularly valuable in that, beyond all other pod-bearers, they force easily under glass during the winter, and can be made, in case of necessity, to furnish a supply of succulent pods all the year round.

PEAS AND THEIR CULTURE.

Because, as previously pointed out, these are summer-cropping plants, it is essential that they have ample root room in generous soil. In the case of early dwarf Peas there is not the same strain on the roots, and they will produce very good crops in soil that is deeply dug. Still even these, should the weather, just before the crop is maturing, prove dry, will greatly benefit if the ground has been worked some 20 to 24 inches in depth.

In the case of taller Peas that range from 3½ feet to 6 feet in height, it is indispensable for the production of really good crops that the ground be trenched, and have a liberal dressing of manure,

buried some 10 or 12 inches deep, to furnish the roots with food and moisture during critical periods of growth. Where it may not be possible to have a large area of ground prepared by deep trenching, it is good practice to sow rows of tall-growing Peas at distances of from 10 to 12 feet apart, using the intervening ground for other low-growing crops. For such rows trenches should be made across the garden or plot at least 18 inches wide, the top spit being thrown out; then the bottom spit, or subsoil, broken up 12 inches deep with the aid of a stout fork, and on that laid a thick coating of fresh moist manure, a few inches of the top soil thrown in upon that, then the manure well intermixed by forking with the soil, finally throwing nearly the whole of the top soil into the trench, which may then be trodden, a drill drawn, and the Peas sown. What soil is left may be partly used to cover the seed, and to form a ridge on each side that will enable good waterings to be given later to the plants. When a number of rows are grown side by side on a piece of ground, the very dwarf kinds must not be less than 20 inches apart, and the width between the rows of the taller Peas should be at least equal to their height. Crowding of the rows is a far too common evil in Pea culture.

SEED SOWING.—Few vegetables suffer more from excessively thick sowing than do Peas. Ordinarily twice as much seed is sown as is needful, and not unfrequently the plants are three times too thick. What seems to be, when the plants are a few inches in height, a fine promising row is, when cropping time comes, a comparative failure; because the plants are so crowded they are literally starved, and hence the blooms come blind or the pods are few and poor. The finest pods of Peas are always found on rows that

have ample room and the plants thinly sown, having also good root-depth in rich soil. Small hard round early Peas may be sown more closely, but all the best large-seeded varieties should be not less than two inches apart in the rows. It is a good plan to either draw a wide drill, or else two separate drills, one on



FIG. 22.—PEA PLANT - BRANCHING AND BEARING.

each side of a line, and in that way strong plants are produced, because they have ample room. In the case of very strong-growing varieties 3 inches apart is not too wide for the seeds in a double row or a flat drill. Fig. 22 shows how a pea plant will branch when room is afforded.

SUPPORTING PEAS.—Pea supports are indispensable

to the growth of full crops. Pea plants naturally throw out tendrils in search of supports, and the plants are always stronger and more prolific when such aids are provided. Suitable sticks are found in the small Hazel Nut branches, Wych Elms, Larch, or other free-branching trees. Such branches should be cut with a sharp hook the length desired, trimmed into shape, have the bottom sharply pointed so as to be fixed easily in the ground, and be placed a few inches from the Pea plants on each side of the rows, but close enough to prevent the growths falling between them. A few small brashy twigs inserted between the taller are very useful, also economical, as a less number of the latter suffice. Pea sticks are cheap in woodland districts, but dear in the suburbs of most towns. In these latter places it is well to purchase strong flat frames of stout wirework with large diamond-shaped meshes or openings. These range in height from 3 to 6 feet. They have to be secured to stout stakes, but once fixed are excellent for the object in view. They may be stored in a dry place in the winter, and if duly cared for will last for many years. Supports of whatever kind should be affixed when the Pea plants are 2 inches high.

It is wise to gather Peas the moment these are ready for the table, so that the plants are relieved of the strain of producing pods. Too commonly Peas are allowed to hang too long, thus impairing the productiveness of the plants; nor should the haulms be bruised in gathering, as this ruptures the sap-vessels and arrests further growth. When it is desired to save pods of any variety for seed, a portion of a row should be specially saved for that purpose. If the best pods be gathered for eating, and only the later ones left to ripen, then the stock will become weakened and unprofitable.

VARIETIES.—Although Peas are divided into whites and blues, rounds and wrinkled—these terms applying to the dry seeds—varieties are usually selected for height, for productiveness, for flavour, for earliness or lateness, or perhaps for capacity to produce large handsome pods for exhibition or some similar reason. So wonderfully varied in these respects are Peas that every wish can be satisfied. Peas, however, are subject to considerable change in popularity as new varieties are introduced. Hence the selection given below must be regarded as made for the present time but not for all time.

DWARF PEAS have been much improved of late and give produce of great excellence over a long season. William Hurst, Chelsea Gem, English Wonder, Carter's Daisy, Robert Fenn, and Omega range from 18 to 24 inches in height. They are great croppers in generous soil and delicious in quality. They are appropriate for small gardens or allotments, and need but trifling supports. They also admit of intercropping with winter greens.

MEDIUM HEIGHT PEAS.—Among the best are Sutton's Early Giant, Webb's Senator, Edwin Beckett, The Gladstone, and Autoerat, which ripen in the order named. Prestige, Sharpe's Queen, and Latest of All are also good. These excellent varieties range in height from 3 to 4 feet, and afford a long succession of superior produce. Senator is very productive. The others afford fine pods for exhibiting.

TALL PEAS always pay to grow on good and somewhat retentive soil, and where stakes can be obtained cheaply. These must range from 5 to 7 feet in height. Tall Peas should be sown thinly, as they need ample light and air. Of these it is enough to mention Telephone, Duke of Albany, and Alderman

for the production of large pods for showing, and *Ne Plus Ultra*, *Reading Giant*, and *Champion of England* for flavour. Varieties that have long handsome pods, the peas in them thickly set, and open well are the best. Very broad puffed pods are rarely so useful for table or so desirable at exhibitions. Sowings may be made from January till June.

Reputably Peas, like all the pod-bearers, need little nitrogenous manure, having the faculty to generate nitrogen for their use. Still, experience proves that they thrive best when the ground has been well dressed with moist animal manure, especially during dry seasons. Where, however, chemical manures have to be used as dressings, equal portions of superphosphate and kainite at the rate of 5 cwt. to the acre, or about 2 ozs. to the square yard, may be dug in when the ground is being prepared, and a dressing of half the quantity of nitrate of soda may be scattered on the soil and hoed in after the plants are a few inches in height. Apart from its manurial properties, nitrate of soda helps materially to retain moisture in the soil in dry weather, and that is often of great importance.

BROAD BEANS.

This term includes the sections commonly known as *Broad Windsor* and *Long Pod*. The distinction, however, is not one of species but of form of pod. *Windsor Beans* have short, broad pods, and seldom have in them more than two, or at the most three beans. Efforts made to produce greater length with corresponding breadth have not been very successful, but it is possible that great improvement may be obtained in that direction. Varieties of the true broad type that carry four or five beans in a pod are

usually found in illustrations only. For market uses the Broad Windsor still seems to be the most generally grown, but were the good, long-podded varieties better known, no doubt they would be much

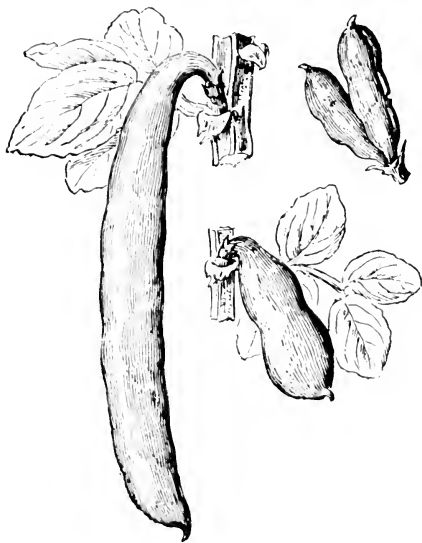


FIG. 23.—BROAD BEANS.

Types of drooping Long-pod and Broad Windsor with the upright Beck's Gem.

more in demand. These are so much handsomer and more prolific that it is no matter for surprise that they are so generally grown in the best-managed private gardens.

Since the introduction of the very long-podded Seville race, known also as Mammoth, Aquadulce,

Exhibition, and Leviathan, few others seem to be grown for exhibition, although it cannot be truthfully said that they are the best average croppers. If the pods be very long they are not always thickly placed on the stems, and very often the beans in the pods are wide apart. When, however, these Seville pods are straight, fresh, green, handsome, and well filled, they invariably attract the attention of judges first. The Seville section is an early one also, and may well be grown for that reason.

Broad Beans are usually so hardy they may be sown in late autumn to stand the winter. Ordinarily, however, there is little gain attached to such sowings, and experience proves that sowings made in January will give quite as early and often much better results. These Beans are such cool-weather plants and so impatient of heat, that such sowings as are made should be got in during the first three months of the year. Then the crops may be gathered before the weather becomes hot and dry.

If sown in quantity the drills should be at least 24 inches apart for single rows and 27 inches asunder for double rows, the seeds being placed about 4 inches apart in the lines. When the stems have on them a good covering of flowers the tops of the plants should be picked out. That checks undue growth and throws strength into pod-production.

Broad Beans like strong holding soil, and where the soil is naturally light it should be deeply trenched, have a liberal dressing of moist, half-decayed manure, buried down in it several inches, and the ground well solidified by treading. Sow seeds in the drills at the distance above named apart, as thinly grown plants always give the best results. Beans like plenty of moisture, and a mulching of long manure is very helpful in hot weather in preventing evapora-

tion. Mulching means covering the soil 2 or 3 inches thick with manure.

VARIETIES.—These, as we have said, vary in character, but they are not at all numerous. The best of the dwarf or Fan Cluster section, specially suitable for very small gardens, as it only grows 18 inches in height, is Beck's Green Gem, a very prolific sort of the best quality, but the pods are small. Then come the Early Long Pod, so good and hardy, and Johnson's Wonderful, a sturdy maincrop variety that carries pods of good medium length and in great profusion. Next there are the true broads as found in the Old Windsor, the Green Windsor, and the Harlington Wonder. These are closely allied, being simply selections from the original Windsor, introduced by a Dutchman to the Royal Borough many generations ago, and hence its well-known appellation.

Broad Beans are cooked when rather young; but when older they are very good if the skins are removed after cooking, and the peeled seeds sent to table. The practice of topping the plants not only tends to render the pods finer, but it also, when the Black Aphis is abundant, removes those portions of the plant on which the insects prefer to feed and ruin the crops.

RUNNER BEANS.

Whilst under this heading it is usual to associate the scarlet or rough Runner, it must not be forgotten that there are also smooth-podded Runners of great merit that are well worthy of good cultivation. All the Runner Beans grow tall if supported by stakes or other material of adequate height. Where the soil has been deeply worked by trenching, and is well fed by good dressings of manure, the rows placed 6 to

8 feet apart, and the seeds sown not less than 6 inches asunder in the drills, it frequently happens that the growth will run to a height of 12 feet

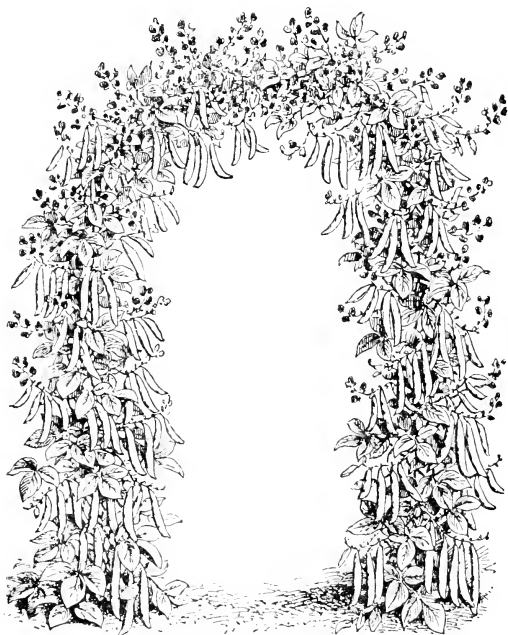


FIG. 24.—ARCH OF RUNNER BEANS.

and produce flowers and pods most abundantly, all the way from bottom to top; and if the pods are gathered as soon as they are large enough for use, preventing seed formation, the plants will continue

productive from early in July until the end of October. In gardens it is always preferable to sow rows of Runner Beans at very wide intervals so that other crops can come between them. In that way ample light and air reach the plants and the flowers set profusely.

Very much, however, may be decided by local conditions. Wonderfully productive are these climbing Beans when trained up string or to tall sticks close to walls or fences. Even in towns they often do well in that way, and they are also seen forming useful and ornamental arches in suburban gardens as represented in Fig. 24. In field culture or in allotments, where it may not be practicable to furnish stakes for supports, the usual practice is to sow thinly in drills 3 feet apart, pinching the twining shoots frequently and thus keeping the plants dwarf. In that way they will bear profusely and for a long season if the pods are regularly gathered. This plan usually admits of Brussels Sprouts or other strong-growing winter greens being put out between the Bean rows.

VARIETIES.—This section, so well known and so popular, includes what are called white Runners, both the flowers and seeds being white, but the pods exactly resemble those of the typical scarlet-flowered variety. As these two forms constantly sport and re-sport, it seems that in all other respects they are identical, though some persons consider the pods of the white Runner more delicate in flavour than those of its scarlet congener. The old Painted Lady has flowers both scarlet and white, the pods rather short but freely produced. This variety is not, as a rule, so robust as are the other forms. The common white Runner is now practically displaced by such fine selections as Giant White, White Czar, and

Giant Titan, all producing very long broad pods in great numbers but these should be eaten while quite young.

Of the scarlet section we have many very fine forms indeed. The old Scarlet is quite put aside by gardeners in favour of *Ne Plus Ultra*, *Hill's Prize*, *Sutton's Prizewinner* and others, all of the same type, pods long, narrow, straight, fleshy, and very handsome. They are often from 10 to 11 inches in length, yet when quite young are tender and handsome. *Girtford Giant* produces huge pods.

Next come the smooth-podded Runners, the best of which are *Sutton's Tender and True*, or *Veitch's Climbing French Beans*. They may be described as climbing selections from the *Canadian Wonder Dwarf French Bean*, and this, it may not be generally known, is the ancient *Flageolet* under a modern name. Those who prefer smooth-podded climbing Beans will find the two varieties named excellent. Height about 6 feet. The old *Case Knife*, or Dutch section, is now little grown. These have long, narrow, smooth pods that have a slight curve towards the point. The flavour is somewhat different from other Beans. The seeds are smallish and flat, generally greyish-white. One of the best of the section is *Fillbasket*. These grow to a height of about 6 feet. Sowings may be made in May and June.

BUTTER BEANS.—These are highly favoured on the Continent, the pods being boiled whole, then served in sauce or melted butter. So cooked they are most delicious. When ready for use the pods are long, smooth, quite round, and of a beautiful golden colour. They are simply trimmed at both ends, then cooked entire. The best sorts are *Mont d'Or* and *The Hungarian*. They reach to a height of about 5 feet, should be sown thinly towards the end of May,

and need the same culture and attention as other Runner Beans, but are more tender.

DWARF FRENCH BEANS.—One of the great uses to which this section of Beans can be put, and which renders them of especial value to gardeners, is that they may be grown in heated houses or frames in the winter, and thus help by successional sowings to maintain a supply all through that dull season. No such course is open to cottage or allotment gardeners, and they have to make the best of the section in the summer months only, and in the open air. Under



FIG. 25. DWARF FRENCH BEAN—CANADIAN WONDER.

glass dwarf Beans are usually grown in pots, some 6 or 9 plants in those 7 and 8 inches in diameter. They are stood on shelves or as near to the glass as possible, so as to render fertilisation of the flowers easy, and also to keep the plants dwarf. Sowings are usually made every month where a supply is needed all the winter. A temperature of from 50° to 70° is required to induce the plants to pod freely.

The best varieties for this purpose are Syon House, Osborn's Forcing, and later Ne Plus Ultra.

OUTDOOR CULTURE.—Dwarf French Beans are very tender, and therefore should not be sown in the open ground until it is probable that ere the seed leaves are through the ground all danger from spring frost is over. This stage of growth usually takes from 10 to 14 days. Again, it is of no use to sow later than the middle of August for late pickings unless the plants can have some special protection towards the end of September, as a light frost then will destroy them. If the first sowings be made about the second week in May, they may be continued every two weeks until the middle of August. The common rule is to sow in drills at 2 feet apart, the seeds in the drills being from 3 to 4 inches asunder. As a rule seeds of these Beans are sown too thickly. It is not well to sow too many at once. More frequent sowings of small quantities give better results. It may be repeated that when picking commences it should be persevered in rigidly, as if Beans be allowed to become hard and useless for eating the plants soon become exhausted. French Beans thrive very well on ordinary garden soil deeply dug and moderately enriched. Late sowings follow well after early Potatoes or other crops previously manured for.

Drills should be about 3 inches in depth, and if the weather be very dry it is a good plan not only to flood them with water over night, but also to soak the seeds for a few hours before sowing. That plan indeed applies equally to Peas and Runner Beans, as the water absorbed as well as the moist condition of the drills greatly assists germination when otherwise the hot, dry condition of the soil would check it.

VARIETIES.—Although there is a considerable number of dwarf Beans, some are fitted for forcing

only, and some older ones have been displaced by others of greater excellence. Still, new varieties are rarely produced, the best existing kinds being so excellent. Three of the best in cultivation are *Ne Plus Ultra*, seeds of a brown colour, very early and prolific; *Long-podded Negro*, seeds flattish, long, and black in colour, and *Canadian Wonder*, probably the most widely grown of all the section; pods very long, straight, clean, and handsome; seeds long and of a reddish colour. This variety is more grown for exhibition than is any other, and it is also a first-class variety for all ordinary uses.

HARICOT BEANS.—There are both tall and dwarf forms of these, the seeds being white, roundish, and consumed in a ripe state, after being properly cooked. They are wholesome and nutritious. These Beans are very little grown in Britain, but largely imported and sold cheaply; yet, when desired, home supplies may be had in all districts in which *Scarlet Runners* and *Dwarf Kidney Beans* will ripen their seeds, and the culture of all is identical.

FRUIT-BEARING VEGETABLES.

THIS section differs very materially from the pod-bearers dealt with in the last chapter. Even with those there are distinctions, for while of Peas and Broad Beans the seeds only are edible, with Runner and French Beans both shell and soft small miniature seeds are eaten. Fruit-bearing plants, that are classed as vegetables, have on the other hand thick pulpy flesh enclosing the seeds, and that is consumed while the seeds are either rejected or not classed as food. Thus of Vegetable Marrows we reject the seeds, of Cucumbers we eat the fruits that have not seeded, and of Tomato fruits the seeds are of no importance whatever. It is in the pulp entirely that we find food, and in each case it differs materially in texture, flavour, and method of use.

VEGETABLE MARROWS.

These first command attention, for they are most easily and widely grown. We see them excellent in cottage and other gardens, allotments, and in open fields. The plants are of the Cucumber or Gourd family, are easily raised from seeds sown under glass, and may be exposed to the weather with safety only after spring frosts are gone ; they also soon succumb to early, autumn frosts ; hence their season as out-

door plants is short, and it is rarely they are grown otherwise. Vegetable Marrows are very accommodating all the same; they can be made to grow almost anywhere, if there be suitable soil and moisture, and in hot, dry seasons the plants thrive all the better for a liberal supply of water to the roots.

The ordinary culture may be briefly described as follows: seeds may be sown in a frame or greenhouse early in the month of April in pots or shallow boxes filled with good soil. The seeds should be pressed in thinly so as to bury them properly, and the soil kept moist but not over wet. If the plants be wanted extra early, to have them ready to put out under hand-lights or in frames where they will be protected for a time from frosts, then seeds may be sown about the middle of March in gentle heat. When the seedlings are showing rough leaves lift the plants carefully from the pots or boxes and either place them singly in 3 inch pots or two plants in a 5 inch pot, then place them again in the greenhouse or frame and so assist them to grow strongly. A week or ten days before it is desired to plant them out they should be well exposed to the air during the day, so that they may become somewhat hardened and fitted for outdoor exposure. Even when planted out a little protection of some kind is desirable in cold weather.

It is also easy to raise plants by sowing three or four seeds on specially prepared mounds made by taking out a few spits of soil at intervals of 4 to 6 feet apart, placing in the holes some good manure, and if warm or partially heated all the better, mixing some of the soil with this and forming a slightly raised hillock of the whole. Then make a small ring in the centre 2 inches in depth, and bury the seeds in it.

When the plants are well up they may be thinned to about three of the strongest. Such sowings should be made about the first week in May. It is well to protect the young plants at night until they have become strong. Marrows in well-prepared stations succeed on the flat. They do not answer less well planted on heaps of half decayed refuse, and they will run over fences, pig-sties, or out-houses; and there can

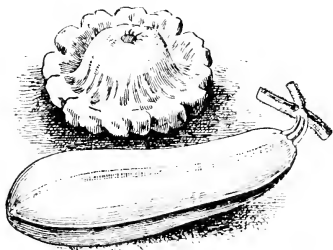


FIG. 26.—VEGETABLE MARROWS.
Long White and Custard Shaped.

be no doubt that the plants are made fruitful when the vines are so elevated, as they are warmer and enjoy their drier positions. Vegetable Marrows, like all the Gourd family, carry both male or pollen-bearing and female or seed-producing flowers, and fertilisation of the latter with the pollen of the former is indispensable. That however is in the open air usually accomplished by insects or the wind. When the vines grow very gross it is good practice to pinch out the points and thus induce greater fruitfulness, but the growths must not be densely crowded, or the small fruits will perish with the fading of the flowers.

VARIETIES.—While the Gourd family is of an

exceedingly varied nature and comprises huge Pumpkins and small Pear-shaped and other forms, few of those are of any value. Of eatable Marrows the selection is much less varied. The most commonly grown, and for market and exhibition purposes by far the most popular, is the Long White, sometimes smooth and sometimes ribbed (Fig. 24). It is very handsome and productive. There are long cream or green striped varieties also some of medium length both white and green. Very prolific but bearing rounder and much smaller fruit are Pen-y-hyd, Moore's Cream, and Hibberd's Prolific, all white; the old bush or compact-growing Custard Marrow is very good also. Of the Squashes, as some of the Pumpkin forms are termed, one of the best is the Egg-shaped Ohio Squash, that has flesh of a yellow colour, and when cooked has a pleasant flavour with a Marrow-like texture. It is not a very prolific variety. Marrows are getting too old for cooking when the rind resists pressure by the thumb-nail.

PRESERVING MARROWS.—Apart from using Marrows in a cooked state whilst green and tender, the employment of those that have become large, but not hard-skinned, for the making of a preserve is worthy of notice. The fruits should be cut into long strips, have all the rind and seed removed, then be cut into cubes about $1\frac{1}{2}$ inches by $\frac{1}{2}$ an inch, and laid in a pan alternately with layers of white sugar and some over the top, then covered and left for the night. The whole should next day be slowly boiled in the stewpan, and when nearly done have a little ground ginger, also a few drops of essence of lemon added and stirred in to impart flavour. The cubes become solidified, and later resemble preserved ginger, presenting in this way a cheap, wholesome, and delicious preserve.

CUCUMBERS.

With the exception of the ordinary ridge Cucumber it is not possible to grow these in Great Britain except under glass such as frames or houses. Ridge Cucumbers are in warm seasons very well and easily grown but in cold summers they do not thrive. They are usually grown on a somewhat raised or elevated ridge of soil in a warm or sheltered position. Holes made in the ridge at intervals of 3 feet, filled with warm manure on which are placed several inches of soil, and in this some five or six seeds sown in the form of a ring, is the ordinary method of raising plants as it is usually the best to sow seeds where the plants are to grow. If the plants be too thick they may easily be thinned whilst still young. At the first it is well to place large pots, baskets, or hand-lights over the young plants at night, but not after all danger from late frost is passed. A common practice where Cucumbers are grown in fields for market, is to sow a row of Rye between every two or three ridges or rows, as in that way the sweep of cold winds is checked and the plants are protected. The end of May is a good time for sowing the seeds, and one of the best varieties is King of the Ridge.

FRAME CUCUMBERS.—Originally it was the practice to grow these varieties in frames placed on manure beds, or else in brick pits heated by flues and hot manure. That plan is now much fallen into disuse, because it is found to be so much easier to grow the plants in low houses heated by hot-water pipes, as in that way a suitable and equable temperature is easily maintained. Still cottagers and allotment holders who wish to grow long Cucumbers have to em-

ploy frames, and often without artificial heat of any sort. If they can obtain good plants about the end of May and plant them in a frame stood on the ground, the soil within being raised into a mound in the centre, and place the plants in this mound, give warm water, then shut up the frame closely, and



FIG. 27.—CUCUMBERS.

Lockie's Perfection and Open-Air Ridge Varieties.

shade a little during the hottest part of the day, the plants will soon root and make growth; then if carefully tended by giving a little air, tepid water as needed, and duly thinning the shoots, leaving only those carrying fruit, good results may follow. If a hotbed can be made from properly turned and mixed stable manure, then cucumbers may be planted in a

frame a month earlier. Usually by June there is sufficient of sun heat to keep the plants in good condition. Good varieties for frame treatment are Telegraph and Lockie's Perfection.

HOUSE CULTURE.—The most useful form of house for Cucumbers is one where there is good natural drainage. The house being low, whether a lean-to or a span-roof, can have a sunken path inside, and in that way ample head-room may be furnished. We have seen excellent Cucumber houses of span shape from 10 to 12 feet in width, having a sunken footpath some 2 feet in depth running through the centre with the soil on each side left at the ordinary level. The roofs practically spring from just above the ground level, and in that way expose a very small portion, literally only the roof, to the influence of the weather. A hot water-pipe is carried along each side of the house on the soil, and there are a couple of others on each side of the pathway. Over those at the sides, are laid upon bricks rough wooden trellises some 18 inches in width, and to these are fixed on each side stout boards about 7 inches in depth the entire length. When these troughs are filled with soil all the rougher or more turfy portions are laid first on the trellis and the rest on the top, so that when the trough is full the soil is a little higher in the centre. In that way, the warmth given out by the side pipes can pass into the soil, and, this being kept moist, the roots are stimulated into growth.

The soil for Cucumbers should consist of three-fourths of good turfy yellow loam, the rest being of old hot-bed or other decayed manure and well mixed. A firm soil is best, and only moderately enriched, as otherwise coarse growth results. When the beds are thus prepared the plants, having been previously

raised from seeds in warmth, should now be strong, each in a five-inch pot. Turned out from these into the middle of the beds at 30 inches apart and loosely tied to small stakes, growth soon follows, and the shoots are trained to wire or wooden trellises fixed about 10 inches from the glass roof. Three or four main branches suffice for each plant, and an abundance of fruits soon appear. These it may be useful to thin, but in any case it is well to pinch out the point of each bearing shoot beyond the next leaf to the Cucumber. That plan helps to keep the growths fairly thin. Water must be given to the beds as often as is necessary for keeping the soil moist, and occasionally, when many fruits are swelling, soot-water, or liquid manure made by infusing a pound of guano in a tub containing twenty gallons of water, or soaking a bag of horse-droppings in the same. The plants should be syringed occasionally with tepid water, as the sun passes from the house. Should white mildew appear on the leaves, coating the pipes with a wash of sulphur and soft soap will do much good if brisk heat be provided, and the house closed. If aphid or greenfly appear, the house should be fumigated by burning in it at night some tobacco-paper, but only to smoulder and smoke, not to flame. When it is desired to obtain seeds, a few fruits may be fertilised for that purpose by applying pollen from the anthers of the male flowers to the pistil of the fruit or seed-bearing flower. For the production of ordinary table Cucumbers, setting is neither needful nor desirable.

Good varieties for house culture are Telegraph, Lockie's Perfection, Rochford's and Matchless. In ordinary greenhouses it is not at all difficult to grow Cucumbers in large pots, training them to stout stakes, or under the roof as previously advised.

TOMATOES

From being a comparatively insignificant vegetable, Tomatoes have leaped into the position of the highest importance and usefulness. We find them now almost universally grown and consumed. There can be no doubt the Tomato is a product that has come to stay. There never has been an instance where a vegetable has become largely popular and in general request that it has gone back and become of no consideration. All our garden vegetables are more popular to-day than they were twenty years ago, and they will continue to increase in favour just as with time gardening is better appreciated and varieties or kinds are improved. The Tomato, now in its best forms is a long way ahead of the Tomato of thirty years ago, and we cannot even now at all regard this most interesting fruit-vegetable as having reached its maximum of excellence, although our best varieties are so wonderfully good.

The Tomato is a native of South America, and soon dies under even slight frost. Thus, when cultivated outdoors it can have but a short season, and its productiveness is in the open air somewhat uncertain. When the summers are warm, Tomato fruits ripen well, especially when the plants are trained to south walls or low fences. In such cases it is only in very cold, wet seasons that absolute failure comes. If, however, seeds be sown under glass in March or early April, and stout plants, some 12 inches in height and well rooted in five-inch pots, have been grown in ample light and air, be planted out in warm positions at the end of May or early in June, and protected at night for a week or two, there should be no appreciable difficulty in

getting a fair crop of ripe fruits from such plants during the autumn.

FIELD CULTURE.—The common method of growing Tomatoes in the open, or in fields, is to train them up either singly or in pairs to stakes. The plants must be raised under glass and be stout, well-hardened, and about 9 inches high when put out. They must not, however, be thus fully exposed to the weather until all danger from spring frost is past. Assuming that the plants are raised from seeds sown thinly in 6-inch pots in April and stood under glass in gentle heat, they may be, when some 2 or 3 inches in height, lifted carefully, and either first dibbled out thinly into pans or shallow boxes filled with fine soil, or else be placed in 5-inch pots filled with similar soil, one plant on each side. They must still be kept in gentle warmth and near the glass, so that they grow stout and strong, and later being more exposed to the air will be in the desired state for turning outdoors at the end of May.

Tomatoes need no special preparation of the soil, which may be deeply dug and lightly manured. The rows of plants should be 3 feet apart, and the plants 2 feet asunder. When stakes are fixed to the plants they may be driven into the ground somewhat slantingly to a height of about 40 inches. Then it is only needful to keep the main stem of the plants tied with raffia to the stake, rigidly pinching out every side-shoot and finally taking the top off the main stem when it has reached the height of the stake. If the season prove hot and dry, a layer or mulching of long manure may be placed over the roots, also when a good crop of fruit has been formed an occasional watering should be given, some liquid manure of almost any description being also useful. Ordinarily the Tomato does not require very

much moisture, therefore waterings should be given sparingly. For the same reason when preparing pots for the reception of seeds there should be placed in each quite an inch in depth of rough drainage, and over that some of the coarser pieces of the soil used, the finest being reserved for the top. When plants

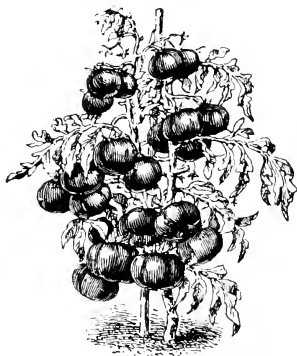


FIG 28.—OPEN-AIR GROWN TOMATO.
Sutton's Earliest of All.

are potted later the same care as to drainage is essential.

HOUSE CULTURE.—After all, the bulk of Tomatoes produced in this country are grown in glasshouses. So important an element in the market trade has the Tomato become that vast areas of glass structures have been erected in various parts of the kingdom expressly for their culture. All the same it would seem difficult to make the supply exceed the demand, and thus the investment has generally proved to be a profitable one. The most favoured form of house is what is called a span-roof, that is,

where the sides are equal and there is a path running through the centre under the ridge or highest part of the roof. When such houses are built low, then the rule is to put out the Tomato plants in soil beds on each side of the house, and train the plants to wires or wood trellises that are fixed 6 to 9 inches below the roof in the way that vines are usually trained. When, however, the house is broad and high, then it is the rule to put out the plants in rows about 18 inches apart running crosswise on each side of the central path, and train them to erect stakes, wire, or stout string affixed to the roof, to keep them upright and in their proper place. The beds are on the ground level, and not raised. The soil should not be rich. Nothing is better than medium loam made firm. The plants, also those trained up under the roof of a house, ought to be kept free from side-shoots, so that each consists only of one main stem for producing leaves and fruit.

Raised beds along the sides of low houses, where plants are trained up the roof, need only be 18 to 20 inches wide and 6 inches deep if the soil be fresh every year, and especially of a turfy loam. Strong manures should be avoided. In this case plants may be put out along the bed at from 12 to 14 inches apart, and usually, if properly attended to by pinching, giving a little warmth and plenty of air, good crops result. Where flowers set fruit badly an occasional tapping of the stems helps to distribute the pollen for effecting the desired purpose. When specially fine fruits are desired, then as soon as three or four on a truss or cluster are set the rest should be cut out. For all ordinary as well as for market purposes well-ripened, handsome, rich-coloured fruits of medium size are better than very large ones.

Tomato plants may be grown just as well and with

the same great cropping results if grown singly in pots 9 to 10 inches across, and in pairs in pots that are larger. They may in this way be grown in a light greenhouse, simply needing treatment generally similar to what has been already described.

When fruits have begun to show colour fairly, and it is desired to give the plants some relief, then such fruits may be gathered, and if exposed to warmth and light will soon colour fully. The best flavour is however usually found in fruits that have ripened on the plants. When very gross leafage is made it is usually the product of too rich soil. To correct that, portions of these large leaves may be cut off; but as a rule the constant pinching out of side-growths answers every requirement for admitting light and air.

Plants under glass and in warmth if raised early in the year may be put out in February or March, and so be induced to ripen fruit in May. Also plants put out in May will bear all through the summer and autumn up to Christmas if heat be afforded then. Thus Tomatoes under glass have a long season of usefulness. Good produce however cannot be expected during January, February, or even March except under most favourable conditions. Not only is temperature then very low, but light is lacking, and that is a prime necessity in securing good crops of well-coloured Tomatoes.

VARIETIES.—For outdoor culture the best are Earliest of All, Laxton's Open Air, Magnum Bonum, and Conference, the latter a prolific variety having smooth, round fruits. The three former have sutured or uneven fruits.

For indoor culture Webb's Regina, Sutton's A1, and Collins' Challenger produce good apple-shaped fruits, scarlet in colour. Then of the flatter round,

smooth section, Sutton's Perfection, Carter's Duke of York, Sharpe's Plentiful, Ham Green Favourite, and the newer and early Frogmore Selected are among the best. Golden Queen is a fine yellow Tomato, and for the production of cluster or dessert fruits small but very attractive and pleasant-eating are Sutton's Scarlet Dessert and Golden Nugget. There are some pretty Currant Tomatoes also that are useful for decorative purposes.

GREEN VEGETABLES, SALADS, AND HERBS

A VERY wide, varied, hardy, and most valuable section of vegetables is found under this heading. It is mainly composed of the Brassica family, otherwise known as the Cabbage tribe, and we have these heart and leaf vegetables practically all the year round. Some are, like Cauliflowers, annuals, but the bulk is both hardy and biennial. We have conglomerate marrow-like heads in Cauliflowers and Broccolis; hearts in the white, red, and Savoy Cabbages and Coleworts; solid sprouts in the Brussels Sprouts, and leaf-heads in the various Kales. The flower-head section, which comprises Cauliflowers and Broccolis, first attracts attention. One is tender, the other hardy; one gives us heads in the summer and autumn, the other in the winter and spring.

CAULIFLOWERS.—If seeds of these can be sown in shallow pans or boxes in gentle warmth either in a house or frame in January or February, it is very easy, by pricking out the plants when large enough to handle into other pans or boxes thinly or into the soil bed of a frame direct, to have an abundance of stout, robust young plants to transfer to a warm border in April, and have good heads to cut by the end of May or early in June. The best variety for that purpose is the dwarf Early Snowball or Early

Forcing. It is unfit to sow in the autumn and keep in a frame during the winter, because small button-like knobs are apt to form rather than large heads for use. When sown as advised and the plants put out early in clumps under hand-lights or at fifteen inches apart unprotected, not only are good white heads obtained early, but quite as soon as wintered plants will give them.

Seeds sown in January in a cold frame will soon germinate and make strong plants to put out about the middle of May. The Early London is the best for autumn sowing (end of August), but the plants must be either kept in a frame all the winter or be put out in the autumn in clumps under hand-lights or cloches, which are very large bell-glasses.

The Mammoth and the Autumn Giant are fine varieties to sow the seeds of out of doors early in March, but the bed must be either well netted or covered, until germination has ensued, with some long litter or straw. Strong plants of these, raised as directed, should be planted out early in the summer, and they will give fine heads during the three autumn months. Thus it is easy to have good Cauliflowers from June to November. Late heading Cauliflowers should have the larger leaves tied loosely at the top or else be broken down over the heads. In that way protection from frosts and heavy rains is afforded.

WHITE BROCCOLI.—This, being biennial, cannot be sown at various times over a long period. It is needful to sow seeds in the spring, and usually in March or April. The best course is to sow thinly in shallow drills ten inches apart, as the plants do better than when thickly crowded in a bed. (Similar remarks as to time and method of sowing equally apply to Brussels Sprouts, Kales, Savoy, and some

Cabbages.) In all cases the seeds should be protected from birds. Plants may be put out into the open ground as vacant spaces offer. July is a good month generally for such planting, but if the weather be dry the plants will need a few good waterings to induce them to make roots. The ground should not be too rich or loose, because coarse rank growth often results in much injury from frosts in the winter. Firm soil on the other hand creates hardier stems and leafage, and if the heads be not so large, at least they will be more certain.

Young plants should on no account be left too long in the seed bed, to become lanky or drawn.

If ground will not be at liberty early enough, then it is best to dibble some of the stronger plants four inches apart into a small nursery bed, where, if watered and shaded for a few days, they will grow strongly. They can then be transplanted later with good clusters of roots to where they are to stand through the winter. The rows for Broccoli plants may be 24 to 30 inches apart, and the plants in them 18 inches or more asunder.

Good varieties for succession are Christmas White for turning in in January, followed by Snow's Winter White, Pearl, Mammoth, Knight's Protecting, Model, and Late Queen, the two last-named giving produce till the end of May, sometimes later. Some growers do not sow the seeds of these till May, and the plan often answers well.

It is good practice to earth up the stems of White Broccoli or to lay them on their sides and then cover the stems with soil at the end of October or early in November, thus protecting them from hard frosts. The Purple Sprouting Broccoli is very hardy, and gives numerous sprouts during March and April.

BRUSSELS SPROUTS.—On the whole there are few

members of the Brassica family more useful or profitable to grow than are these. They have specially the merit of affording produce over the whole of the winter. Seeds sown quite early in the year give plants to put out in June, and in good soil these will be strong enough to furnish side sprouts early in October. A later sowing made early in March will furnish plants to put out during July, and these will be on the whole hardier and more enduring, carrying good firm but not such large sprouts up to the end of March. There are several varieties of Brussels Sprouts, Northaw Prize being one of the best to grow in rich, deep soil, and the Exhibition is suitable for poorer land and especially for field culture. When planted out in July, in rows two feet apart, the plants 18 inches asunder in the rows and eventually rising to an average height of 20 inches, the sprout product from the stems is a remarkable one, and for ordinary consumption when properly cooked nothing can be nicer.

There is less actual waste from Brussels Sprouts than there is from any other member of the Cabbage tribe. The tops or heads should not be cut until the close of the season and after the side sprouts are nearly exhausted. Up to that time they serve to protect the stems from frost and also help to maintain growth. All these green-leaf plants are naturally exhaustive of nitrogenous elements in the soil, and a good dressing of manure should always be given to ground on which they have been grown. Seeds should be sown thinly in shallow drills 12 inches apart at the times named. If ground be not ready when the plants are six inches in height, then a number should be dibbled out thinly in a small portion of ground where they may become strong and sturdy and then be transplanted later on vacant

ground as advised. The side leaves ought not to be cut from the stems whilst green, but all that have become yellow should be removed.

WHITE OR COOKING CABBAGES.—Of these most valuable members of the Brassica tribe we have legion ; and by the aid of a few successional sowings we can have Cabbages in plenty all the year round. The best seasons, however, are in spring and early summer and in autumn and early winter. Cabbages do very well generally on all ordinary



FIG. 29.—CABBAGE—ELLAM'S EARLY.

fertile soils. Their chief enemies are caterpillars and club. Caterpillars may commonly be checked by strewing fine dry salt on the plants at night and then washing off with clean water next morning. Club, whether proceeding from a maggot or a fungus, may often be cured by giving the soil, several weeks before it is planted, a light dressing of gas-lime, about half a peck to a rod.

For all ordinary purposes it suffices to make sowings of Cabbage seeds in February or March, in May, in July, and at the end of August. Plants may be put out into the open ground as soon as they

are strong enough. The autumn sowings give heads for cutting early in the year up to the end of May. Spring sowings afford produce as needed during the summer and early autumn, and the July sowings during the late autumn and well into the winter.

A very useful section of the Cabbage is the Colewort, of which there are two forms, the conical Hardy Green and the flat-headed Rosette. These should be sown in June for late summer planting, and they turn in for use during the autumn and winter. These may always be planted thickly, as they remain on the ground but a comparatively short time. The same may be said of the smaller and earlier Cabbages, such as Ellam's Early, Flower of Spring, and Early York—all excellent.

The next size Cabbages, such as Nonpareil, L'Etampes, and others should be planted in rows from 20 to 24 inches apart, and the larger headed, such as Enfield Market and All Heart, if the ground be specially good, may need even greater space. It should, however, be understood that huge Cabbages are not so acceptable as food as are those of moderate size which are also milder in flavour.

Whenever a portion of ground in gardens becomes empty and is not wanted for other crops, it is a good plan to occupy it with Cabbage plants, as there is no telling when they may prove acceptable. Waste heads can be utilised as food for cows, pigs, and poultry, or rabbits.

As exhibition specimen Cabbages are often shown far too large, it may be well to say that good, medium-sized, greenish close heads, clean and fresh, are always the most acceptable.

RED OR PICKLING CABBAGES.—These are usually grown in gardens, but for private use a few suffice. These are generally from a sowing made in the spring, the plants put out early in June, and thus they have

time to head in by October, which is a capital time for pickling. The best variety is the Dwarf Blood-Red. The heads are not so large as those of the old Red, but are of a deep colour and more crisp when sliced. They can also be planted much closer together. A dozen plants of Red Cabbage usually suffice for any ordinary purpose except when grown largely for market sale.

SAVOY CABBAGES.—These are usually hardier than the smooth leaf or white Cabbages. They probably

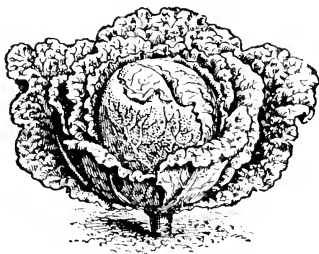


FIG. 30.—SAVOY—DWARF GREEN CURLED.

inherited that nature from the curled Kales that are so very hardy. These Savoy forms are grown exclusively to furnish a winter supply of hearted Cabbages, indeed they seem hardly at their best until they have been exposed to some frost. In mild open winters they turn in too early, hence are less serviceable than when hard weather prevails. The best sorts are Tom Thumb (very dwarf), Early Ulm, and the Dwarf Green Curled. As large heads are not wanted, it is best to defer sowing until the end of April or early in May, and then in the summer to plant out somewhat thickly and thus utilise the ground to the utmost. Rows may be 16 inches

apart for the Tom Thumb, and 24 inches asunder for the other sorts. It is well for insuring small heads later in the winter to sow seeds in June and plant out in August. Such plants will often withstand hard weather better than those raised earlier and planted sooner. The Drumhead is the largest, but it is too coarse for other than field culture.

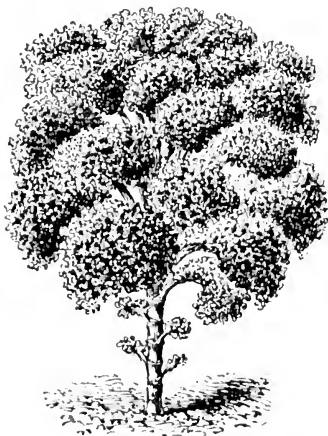


FIG. 31.—CURLED KALE.

BORECOLES OR KALES.—These form a very hardy section of the family, and therefore are particularly serviceable. For giving winter and early spring cuttings of these there are the Tall, Dwarf Curled, and the Hearting Greens, with the so-called Arctic or Labrador Kales, green and purple, dwarf and very hardy. Asparagus, Cottagers, Buda, and Hundredfold, all strong growers, are specially valuable to give some heads in winter and a great

abundance of stem sprouts or shoots for picking in the early spring. Seeds of these are sown in March or April as advised for other sections, the plants being put out between or after summer crops as may be found desirable. The value of a good breadth of some two or three varieties of these Kales in a garden in the spring cannot be over-estimated, as then the supply of all other green vegetables runs very short indeed.

SPINACH

This crop is of great use, especially during the winter months. The variety commonly known as the round-seeded Flanders is ordinarily sown in the spring and summer somewhat thickly in drills, and the plants either cut clean off as soon as they are several inches in height or a picking of leaves is first had and then the clean cutting follows. In all such cases it is best to make small and frequent sowings, as the plants when so grown soon run to seed. If, however, the Longstander variety be sown more thinly in drills during the summer, then more enduring results are obtained, as the plants do not run to flower so speedily.

For giving a winter and early spring supply of Spinach larger breadths may be sown thinly on well dug and manured soil in rows 12 inches apart. These sowings should be made the first and last weeks in August, to give a good succession and long endurance. Such breadths, if the plants be thinned out to six inches apart in the rows, will furnish ample leaf pickings from November onward till the end of March or even later, and in this way the crop proves most profitable. Winter Spinach, beyond being well-thinned, requires frequent stirrings of the soil between the rows to keep down weeds.

The usual plan has been to sow seeds of the prickly Flanders for winter use, but now the rule is being generally reversed, as the round-seeded variety is found to be hardier and to give better leaf crops. The Viroflay or Victoria is a strong-growing form that is much in favour now for winter culture as well as for summer use.

LEAF SALADS.

These consist chiefly of Lettuces and Endive. The former we can have nearly all the year round,



FIG. 32.—COS LETTUCE.

but the latter is chiefly a winter salad. Lettuces are found in two distinct sections, upright or Cos and spreading or Cabbage. The former are chiefly grown for summer use; the latter for late autumn, winter, and spring supplies. Seeds of Lettuces may be sown frequently. An early sowing of both sections may be made in a frame in February, or in a shallow

box or pan in a greenhouse or even in a box covered with a piece of glass, and stood in a sunny place out of doors. Such a sowing should give a number of strong young plants to put out in April. A farther sowing made out of doors in a warm place in April will give plants to put out in succession. Other sowings may be made still out of doors each month during the summer up to September, but very small ones suffice. In that way as soon as a few square yards of ground are at liberty there will



FIG. 33.—CABBAGE LETTUCE.

always be plants at hand to put out. Any left in the seed beds form wholesome food for chickens.

The last or September sowing will give plants to put out near south walls or fences or to be covered with hand-lights and preserved for spring planting. Also a sowing for a similar purpose may be made in a frame or under a hand-light at the end of September. Lettuces in the summer like a rich, holding soil and plenty of moisture. They are usually planted 12 inches apart each way. In the winter ridges, warm positions, or slopes facing the sun are best, as then water is more easily thrown off.

Good Cabbage Lettuces are, for the summer All

the Year Round, Leyden White Dutch, and Stanstead Park; and for winter Lee's Hardy Green and Hardy Hammersmith. Excellent Cos Lettuces for the summer are Paris White, Superb White, and the Champion White; and for winter Hick's Hardy Green and the black-seeded Bath Cos are of the best.

ENDIVE.—This is a one-season crop, being in use chiefly in the late autumn and winter. Sowings of seeds may be made early in July and again early in August, either in shallow drills or small beds out of doors. The plants must not be in the least crowded, and when six inches in height should be transplanted into deeply dug and well-manured soil that is somewhat sloped to the south, as furnishing needful surface drainage in the winter. The rows may be 15 inches apart and the plants 12 inches asunder in them. As the autumn advances and good hearts are formed blanching must be done. In the case of the broad-leaved sorts, such as the Batavian, the whole of the leafage may (when quite dry) be drawn up together and tied at the top with bast or Raffia Grass, as Lettuces are tied, and in that way blanching is secured in a few weeks. The Dwarf Curled or Moss Curled have to be blanched by covering when dry with boards laid along on top of the plants closely. Pieces of clean slate, of tile, or inverted saucers or plates, or indeed anything that will exclude light and air, serve to blanch these Endives when laid closely on them. It is also practicable to lift a number of the plants from time to time and block them thickly in a frame where they may be covered up so as to exclude light. That is especially a good practice when hard frost is imminent. Even a large box partially filled with soil will do admirably.

HERBS.

All these useful plants come under the same designation, as they give their properties through the leaves. One of the most widely grown is *Parsley*, which is easily raised by sowing seeds thinly in drills once or twice in the year, but for all ordinary purposes one sowing in April is sufficient. The seedling plants should be thinned down to four inches apart in the rows when quite young. Plants will also lift and transplant well if desired. The Garnishing, Moss Curled, and Treble Curled are the best forms. Whilst Parsley is largely employed for flavouring, it is also much used for garnishing meats at the table; hence a pretty curled form of leafage is always the most acceptable.

Mint is a perennial plant easily propagated by means of cuttings made from the young tops, set thickly in pots, pans, or boxes of sandy soil in the spring and stood in a frame, or by lifting, also by dividing and replanting portions of the long roots that run in the soil. That can be done after the stems have died down in the autumn. The best variety is the Spear-mint, which has long green leafage. Soil for mint should be prepared by deep digging or trenching and given a good dressing of manure. A newly-planted bed soon thickens and gives much produce during the season. When a good mat of roots has been obtained, clumps, if dug in the winter and stood in warmth, will soon produce growth when tops are scarce and valuable. Mint is usually boiled with Green Peas to give flavour, and is used for many other purposes. The dark-leaved Pepper-Mint is best to make a preparation of that useful liquid.

Sage is a hardy, shrub-like plant of which there are two or three varieties, but the green form is the best. This herb may be grown easily in ordinary garden soil, and plants may be raised by putting in, early in the autumn or spring, portions of the branches as cuttings. These soon make roots and grow. Sage can also be raised from seeds. Other herbs, such as *Sweet Marjoram*, *Sweet Basil*, *Fennel*, common and *Lemon Thyme*, also *Savory*, may be easily raised from seeds, and the latter trio also by division of the plants in the spring.

EDIBLE-STEMMED PLANTS.

UNDER this heading is found a class of plants very different from any previously mentioned. We have in them also great diversity of food material. Chiefly these stem products are edible only when in a blanched or partially blanched state, a condition to which they can very easily be brought by certain simple treatment such as is described in this chapter.

Special value attaches to the products now referred to, seeing that they can be largely utilised during the winter and early spring periods of the year, when most hardy vegetables are scarce. With our better knowledge of the treatment of Sea Kale, for instance, we can have this valuable stem vegetable in constant supply all through the winter with comparative ease, and we can have Asparagus, Celery, Mushrooms, and Rhubarb also throughout the winter. It will thus be seen that the stem section of vegetables is far from being the least important. It is also a section in which there is little change in varieties, for most of these are identical with what have been in cultivation for many years.

ASPARAGUS.

This is a well-known British plant, and is frequently met with on our sea shores. That it is of a semi-

aquatic nature there can be no doubt; hence the common practice of giving to cultivated breadths occasional dressings of salt. Still, it is well to know that during hot, dry weather very moderate dressings of salt are beneficial to many other garden crops. *Asparagus* flowers freely, and seeds can therefore be easily saved from old beds, or if necessary cheaply purchased. Thus the original cost of raising plants is trifling. These plants once raised endure for many years, sometimes, indeed, if well managed, from 20 to 30 years; hence it is of the first importance that the soil should be deeply worked and heavily manured, to render it fertile over a long period.

PREPARATION OF SOIL.—As in all gardens there is great variation of soil, it is wise to select for *Asparagus* such portions as may seem to be of the most holding nature, provided it be not too cold or clayey. Then it should early in the winter be deeply trenched keeping in the process the top or best soil on the surface, and yet breaking up the lower or subsoil thoroughly with the aid of stout steel forks, so that there shall be a well-worked depth of from 24 to 30 inches. Beneath the upper soil and partially mixed with the lower should be a heavy dressing of half-decayed manure, and some time before sowing the seeds or planting crowns, there ought to be forked into the top soil a moderate dressing of well-crushed bones. When ground is so treated it is capable of sustaining strong plant growth for some time. Where the subsoil is chalk, sand, gravel, or harsh clay, it is advisable to excavate several inches of these substances, wheel them away, and introduce good soil, so as to provide the requisite depth. Failing that course, then it is wise to artificially increase the depth by adding to the surface soil, as otherwise only very moderate results may be looked for. To

form the base of *Asparagus* breadths, roadside trimmings of a turfy nature, ditch cleanings, or similar material is most helpful. Of course the addition, where possible, of good loam from an old pasture, intermixed with fertile garden soil, is best for the purpose.

FORMATION OF BEDS.—The old method of growing *Asparagus* is to plant 2 rows of plants in narrow, raised beds or 3 rows in beds some 5 feet in width. This method is still largely adopted in small gardens, and answers very well where such beds remain for many years. In making beds however, it is best to thoroughly trench the ground all over and heavily manure, then plant in rows, the soil between each pair being thrown out on to the beds to form alleys, so that in this way it becomes somewhat raised above the garden level. In market gardens, where two-row beds are most common, the centre forms somewhat of a ridge of soil, and the plants are along the slope on each side. In ordinary garden beds that are some 5 feet in width, the rows are about 20 inches apart, and the roots in the rows about the same distance from each other. The common practice in treating these beds is, after the usual summer growths have died down in the autumn, to fork a few inches of the top soil into the alleys, then give the plants a good dressing of manure, and throw back on it a couple of inches of soil, and so leave the beds all the winter. Early in March the surface is lightly stirred, then another 2 inches of soil is thrown on the beds and neatly levelled with a rake, and later the stem growths come through ready for cutting. Weeds must be rigidly repressed, and in hot, dry weather, when light sprinklings of salt, guano, and nitrate of soda may be given, these should be followed by liberal soakings of water.

CULTIVATION ON THE FLAT.—This practice is now most common in large gardens where many old roots have to be lifted every year for forcing. A piece of ground of good width is trenched and manured as previously advised early in the winter, then towards the spring forked over, a further dressing of short manure, such as from mushroom or hot beds, being added. Broad drills some 4 inches deep are made at 24 inches apart with the face of a broad hoe. In these drills the *Asparagus* roots are carefully planted, the fleshy roots (Fig. 34) being spread out



FIG. 34.—*ASPARAGUS*-CROWN FOR PLANTING.

flatwise to give them a good hold. The drills are then filled in, leaving the tips of the growths level with the surface. The after-treatment consists in keeping the hoe freely used to repress weeds, giving light dressing of chemical manure, but otherwise leaving the breadths alone until the winter, when a fresh top dressing of an inch or two more of soil may be added and lightly forked in. The treatment for all following years must be the same. Not till the third year from planting, however, should any heads be cut, as by that time the plants will have



FIG. 35.
ASPARAGUS HEAD
— HALF NAT-
URAL SIZE.

become very strong. Where roots are needed for forcing it is the rule to plant a good breadth of Asparagus in this way every year, and thus maintain a constant supply.

RAISING PLANTS.—Seeds being easily obtained, any one may raise his own plants. The proper time for sowing is about the middle of April; ground should have been well prepared for the purpose, and the seeds sown thinly in drills 15 inches apart. When the plants are easily seen in the rows the hoe should be freely used to destroy weeds and loosen the soil, also the plants should be thinned out to about a foot apart. They must be encouraged to make all possible growth during the season, and will be ready for lifting and re-planting where needed in the following spring. April is the best month for sowing seeds and transplanting seedlings. Some gardeners sow their breadths direct rather than have to transplant, when the rows are generally about 2 feet apart.

CUTTING THE STEMS.—This may begin in the third year. It is best to take large and small, so long as cutting goes on. The heads may have their points about 2 inches above the soil, and coloured before being cut, but the scales on the heads should not have opened. The stems (Fig. 35), when properly cut as low down in the soil as they can be, should be from 7 to 8

inches in length, but the lower portions of the stems are usually hard and uneatable. The cutting may continue until from the middle to the end of June. A proper Asparagus knife is the best instrument for the work, as little harm is then done to the growing stems. Asparagus roots are easily forced by lifting old ones in the winter as needed, placing them thickly together in soil in some dark warm place, such as in a mushroom house, and giving a good watering. Stems soon spring up, and may be cut for use for some time.

SEA KALE.

Used simply as a cooked vegetable, this is perhaps one of the most easily grown and most serviceable of the entire section. The plant is thoroughly hardy, does well on all soils if they be adequately prepared, is easily propagated either by seeds or root cuttings, occupies the ground but a few months, and, once a good stock of roots is obtained, furnishes an abundant supply of blanched heads all through the winter. The old method of culture consisted in planting roots in trebles in good soil, usually in some remote quarter of a garden, covering these clumps with Sea Kale pots or other utensils, or heaping coal ashes over the crowns in the autumn or winter, then covering portions at a time with long manure and leaves, so as to give some warmth and exclude light and air. When the heads were long enough they were cut close to the ground. After the covering was cleared away new crowns formed, and these were again covered the following winter, blanched, and cut as before. The method is a very untidy one, and often conduces to the production of Sea Kale tainted with the odour of the manure. Then the roots, after a few

years, die away, the plantation becomes thin, and it is needful to make an entirely fresh one for that reason.

RAISING FROM SEEDS.—Assuming the ground has previously been dug, or, better, half trenched, and a heavy dressing of manure buried in it, the surface should be well hoed and levelled, and drills drawn 18 inches apart as for Peas. The proper time for sowing is the end of April. Seeds should be placed in the drills thinly, otherwise there may be great waste in thinning later. Being covered in 2 inches deep with soil, germination soon ensues, and the young leafage is seen in about 3 weeks. The hoe should then be used, not only to stir the soil between the rows, but also to thin the plants down to some 10 inches apart, as the leaves become very gross and need ample space. Beyond keeping the hoe well employed, little more can be done during the summer except giving a thin dressing of salt or nitrate of soda, if possible just before a shower; in dry weather give the dressing in the evening, well hoeing it into the ground the next morning.

By the end of November the leafage will have fallen and decayed. It will be then found that all the roots have projecting but dormant crowns. The next course is to have the roots well dug out, so as to secure the lifting of the smaller as well as the large roots. The main or stout portion, with crowns attached, being required for blanching or planting out to form new plantations, should have all the side roots trimmed off, then be laid in thickly in soil out in the open, protecting them with litter against severe frost. It is well to assort the roots into large and small, if the latter be needed for planting. Where such is not the case, all may be blanched as needed without sorting

ROOT CUTTINGS.—Once a stock of roots has been raised from seeds, propagation by root cuttings may be relied on in future years. In the present case all the side roots removed from the main portions as advised will do to make root cuttings. They will vary in size from that of a pipe stem to that of a man's little finger. Cut all straight pieces

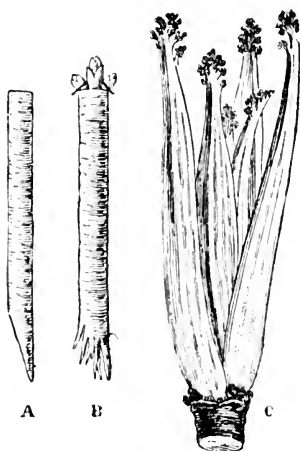


FIG. 36.—SFA KALE. A, AUTUMN ROOT-CUTTING. B, THE SAME IN SPRING, READY FOR PLANTING. C, PRODUCE FOR USE.

to a length of about 4 inches, having the upper end, that cut from the main stem, quite level, and the other or bottom end cut slantingly (A, Fig. 36). This should be done in the autumn. Lay these root cuttings in thickly in soil, chopping down a furrow about 5 inches deep with a spade, planting the sets or cuttings quite thickly right or level ends upwards,

then put soil against them and slightly cover the tops. Proceed to lay in rows of cuttings in the same way a few inches from each other until the entire stock is complete. By the spring most of these will not only have callused over both ends, but will have begun to form crowns and roots (B). They are ready for planting towards the end of April. They should be dibbled in rows some 20 inches apart and about 10 inches asunder in them. All care should be taken to plant the crown end uppermost, and to have them about half an inch beneath the surface. In dibbling, not only make holes of an even depth, but be careful to thoroughly fix the soil about the cuttings. The treatment during the season is the same as for plants raised from seeds. The roots are in the same way lifted in the winter, trimmed and stored as above advised.

BLANCHING.—Sea Kale is of no value as an edible product unless the stems are well blanched. That is, however, easily done. In some cases it is the rule to take out all the roots from a bed in the autumn, except perhaps 2 or 3 rows. These remain to be blanched with soil earthed over the crowns. That is obtained from a furrow on each side, the soil being broken as fine as possible, then covered over the crowns to a depth of 7 inches. This work may be done in sections, so that all may not be ready to cut at once, and it is desirable to lengthen the season of blanching as much as possible.

Strong Sea Kale roots are inserted thickly in soil in warm, dark enclosures, in mushroom houses, and there make growths ready for cutting in 3 or 4 weeks. To keep up a supply, a few dozen roots should be put in every week. By forcing in this way, if there be an ample supply of crowns, produce may be had before Christmas. About one gentle

watering suffices. Where such suitable places do not exist Sea Kale may be planted in a dark corner of a warm cellar, or in some darkened place in a greenhouse, beneath a stage, or placed in deep boxes half filled with soil, then stood in a warm outhouse or cellar and well covered to exclude light and air. The great thing is to have an ample stock of roots; then blanching may go on in almost any dark place that can be found, all through the winter. When the heads (C) are fit they should be cut just under the crown, and neatly tied into small bundles; in that way good clean and white samples invariably secure a good price in the market. Sea Kale is also a most wholesome and profitable vegetable for home consumption.

RHUBARB.

Not useful as an ordinary vegetable, but of great value as a fruit compound, Rhubarb is universally grown and appreciated. It is easily raised from seeds which can be grown or purchased cheaply, but the produce is always uncertain and irregular. Seeds may be sown in drills 15 inches apart in the spring. The seedlings, thinned to 12 inches asunder in the rows, will give strong roots for planting out thinly in the winter. We have, however, such good established varieties, that it is wiser to use the best of these, securing single crowns with portions of fleshy roots attached, and planting them in the spring on deeply worked, retentive soil that has been well manured.

Rows of plants, where grown in quantity, should be fully 4 feet apart, and the roots 3 feet asunder in them. It is an excellent plan in Rhubarb culture to make a fresh planting of single crowns every year, so that by the fourth year the old roots may be lifted in the winter and blocked into some dark place such

as a cellar, close shed, or under the stages of greenhouse to make early blanched growth. In that way the season for pulling stems is greatly lengthened. Roots of three years old may be helped to push early growth by inverting over them tubs, barrels, large pots, or other suitable utensils, also laying over the crowns very lightly some long manure or litter. Two years old plants will give pullings in natural course through the late spring and summer. The culture of Rhubarb is very simple, but it pays best to grow it well and in rotation as advised. Coarse growing varieties that have very woody or stringy stalks should be avoided. The best-known sorts are Hawke's Champagne (stems very rich in colour and very early), Kershaw's Paragon and Victoria. For all ordinary purposes the first will best satisfy needful requirements. The month of April is an excellent time for plantings.

CELERY.

This very popular vegetable has three excellent qualities. It is our finest winter salad eaten raw after efficient blanching; it makes a capital dish when properly stewed, and it has undoubted medicinal properties as a remedy for rheumatism. Celery is very easily raised from seed sown under glass or outdoors on good fine soil. To secure strong plants early, the indoor sowing is the best. This may be made thinly in pans or boxes of fine soil, the seeds being just covered during March and April as wanted early or late. Seeds are cheap and very soon germinate; hence thick sowing is always wasteful and often harmful. When the seedling plants are about 2 inches high they should be carefully lifted and dibbled 2 inches apart in other pans or shallow boxes, or else

in a soil bed in a frame or under hand-lights on a warm border outdoors. In any such case the earliest of these plants, if first well seasoned by exposure to the air, will do to transplant into trenches if they are ready by the end of May. Where, however, the summer crops will not admit of trenches being thus early formed, then it is a good plan to prepare a special piece of ground as a nursery bed, first burying just beneath the surface a good dressing of short manure, making the surface fine and smooth, also firm, then with the aid of a stout board laid across on bricks just off the soil plant the Celery plants from where first dibbled out, at least 4 inches apart. Water them freely at the first, and in hot sunshine shade a little for the first few days. The plants soon make roots, and in a month will be so strong that they can be lifted with good balls of soil and transferred to the trenches without causing any check to growth, especially if watered as often as may be needed.

CULTURE AND BLANCHING.—The preparation of trenches for the reception of the plants is a matter of some importance. Where soil is naturally shallow it is best to have no trenches, but, having buried into the places for the rows heavy dressings of manure, to plant on the level. In that case, to enable ample soil for blanching to be found, the rows should be 5 feet apart. Trenches admit of closer planting and easier blanching, but when made should be well done. It is a good plan to throw out the top soil clean from a trench 16 inches wide, then break up the bottom or subsoil deeply with a stout fork. On this place good half-decayed manure and throw in on it 3 inches of the top soil, fork and mix the whole well, add another inch or so of the top soil, and the plants may be then put out. Where the

subsoil is very poor, such as gravel, sand, or chalk, it is well to throw out several inches of that and partly fill in the trench with top soil before adding the manure, then add more of the best soil and plant. Ordinarily Celery is grown in single rows, but in wider trenches the plants may be in double rows 8



FIG 37.--CELERY—SECTION OF EARTHING.

inches apart. In the rows the plants should be from 10 to 12 inches asunder.

Blanching should not begin until the plants have become strong, as when earth is added round them feeding with liquid manure has to cease. It is, therefore, advisable to allow the plants to be from 15 to 16 inches in height before earth is added. That work should always be done on a dry day. The first thing to do is to gather up all the stout leaf stalks, after removing suckers that may be

round the base of the plants, then with a small fork draw some fine dry soil some 4 to 6 inches thick about the stems. That being pressed round them will serve to keep them erect. Then earth may be added at intervals of from 10 to 14 days, until by the time the plants are fully grown, the soil now forming a sharp ridge, should reach to within 6 inches of the leaves (Fig. 37). It is in that neat way earthing up should be finished, the sides of the ridges being patted over with the back of a spade. In adding earth every precaution should be taken to prevent soil falling into the hearts of the plants and thus checking proper growth.

It is well when hard weather is imminent to lay fern or litter along the ridges to protect from frost, or failing these materials, it is wise to lift a quantity of Celery from the rows and pack the plants close together in some sheltered place where they will be less exposed to injury.

VARIETIES.—These are numerous, and divided into white and coloured. Good dwarf white sorts are Incomparable and White Gem; good dwarf reds are Dwarf Red and Standard Bearer, whilst of taller reds Sulham Prize and Leicester Red are among the best. Good taller whites are Solid White and Giant White. For endurance, and especially for small gardens or allotments, the dwarf varieties are the most appropriate.

CARDOONS.

Not commonly grown plants are these, though when well blanched the stems are liked by some persons. Seeds sown thinly in shallow drills made 3 feet apart and on soil that has been deeply worked and well manured will give plants in abundance. The best

time for sowing is about the end of April. Plants when fairly strong should be thinned to 12 inches apart in the rows. Being strong growers assistance in the form of liquid manure and ordinary waterings may be given during the summer, and as the autumn draws on, earth should be placed close to the plants on each side gradually, the short leafage about the base of the plants being first removed. By the winter, if soil be added on dry days from time to time, the ridges should be 18 to 20 inches in height and neatly banked. That will result in the production of fine, clean, white stems, stout and tender. These are very good when properly cooked, being cut into small lengths and boiled or stewed gently until ready for the table. In some cases no earth is added, the plants being blanched by winding round them bands of stout brown paper or haybands.

GLOBE ARTICHOKE.

These are closely allied to Cardoons, and may be raised from seeds sown under glass early in the spring, the young plants, when strong and well hardened, being transplanted about the middle of May. The soil for them should be as in other cases, deeply worked and well manured. Put out the young plants singly at 3 feet apart in rows 4 feet asunder, as ultimately the leafage needs ample space. Such plants should carry flower stems and heads in the autumn. In this case it is the flower-heads, which consist of a series of green fleshy scales set closely together, that form the part eaten. These should be cut when yet well closed and rounded before the flower is seen. When properly cooked they form a delicious dish. The old or summer leafage dies down in the autumn and new suckers

break up from the roots. These, because somewhat tender, should be protected during the winter by having some litter placed closely round them, and, if the weather be severe, also hooped over with sticks and more litter placed over those. In the spring, when opened and growth follows, some of the suckers may be thinned out with a piece of root attached and planted out for succession as advised for seedling plants.

MUSHROOMS.

The mushroom is not a plant in the ordinary sense in which the word is used, but a fungus, and grows from spores and minute thread-like roots or spawn termed mycelium. Mushrooms grow naturally in pastures, but only towards the end of the summer. They can often be induced to grow similarly but earlier if Mushroom spawn cakes be broken into pieces two inches square, and these placed a few inches deep in pasture where cattle are feeding, the piece of turf cut out to enable holes to be made being replaced. With warmth and gentle rains a crop is almost certain to follow. Generally Mushrooms are grown on beds made with manure. This should always be from stables, as only horse manure gives the needful sweetness and heat. The horses should also be in good health and fed on corn. When given medicine the manure is sour and useless. The manure should be collected as frequently as possible, and is best kept under cover. It should consist of one half droppings and the rest of short straw. This material requires to be turned every 3 or 4 days, not only to get it well mixed, but also to have it all equally warmed and moistened. For this latter purpose, liberal sprinklings of water

may be given if the manure becomes at all dry, and during the various turnings. After a few such turnings the entire body of manure will be gently heated and smelling sweet. It is then in good condition to make up into a bed indoors or outdoors as may be desired. If in a cellar or shed, on a floor or on a shelf of sufficient width, a flattish bed, say 3 feet wide and 6 feet long and 1 foot deep, will do very well if it be trodden firmly and thus made solid. The temperature of the bed may be tested by forcing into it a stick, and when it is found that the full heat has been reached and the temperature declines yet does not exceed 90 degrees, a bed may be spawned. This is done by breaking spawn cakes into about 8 pieces and forcing them firmly into the manure, all over the bed, at from 7 to 8 inches apart, and just within the surface. Then over all should be laid a coating, 2 inches thick, of moist, but not wet, soil, free from stones and weeds, either from the garden, or best, from beneath a pasture, and rather adhesive. This must be beaten down firmly and the entire bed covered with some 6 inches or so of clean litter or straw. Under ordinary conditions of warmth and good spawn, Mushrooms should show plentifully in about 2 months, and with an occasional good watering the bed ought to bear for more than that period.

Where Mushrooms are needed in the winter a warm place should be provided. Beds are, however, made up outdoors with great success to produce all through the winter and spring. These should be of manure prepared as previously advised, and made up in ridge form on a dry bottom. They should be about 3 feet broad at the base, and 3 feet high. They are usually made quite in the open, but some shelter from the north and east is desirable. Made firmly

and neatly, then spawned as before advised, coated with soil and watered, then covered with a very thick dressing of long litter or straw, such beds will produce Mushrooms in about two-and-a-half months if the weather be not too severe. They are usually made to keep up a long succession from September till April, and are represented in Fig. 38, from Wright's *Mushrooms for the Million*,¹ in which the subject is



FIG. 38.—AN OUTDOOR MUSHROOM RIDGE.

fully treated. Mushroom spawn can be purchased from seedsmen in single cakes, or in any quantity, at moderate prices. Only good, sweet, fresh spawn is useful; old spawn has usually lost its germinative power, the white, thread-like roots running through the cakes having, through age, become worthless.

Boxes 12 inches in depth, filled very firmly with

¹ Not now obtainable.

properly prepared manure, then spawned within the surface, coated with soil, and covered with litter, and stood in any close warm place, will produce Mushrooms, if occasionally watered. In gathering, it is best to pull the Mushrooms not roughly, but by giving the stems a twist, so as to break the spawn and yet not injure the growing crop. Cutting the stems leaves in the bed material that frequently decays, and thus destroys the spawn

COTTAGE AND ALLOTMENT GARDENING.

OUTSIDE of what is termed professional gardening, which is an industrial vocation, there is no phase of land cultivation now attracting greater attention or arousing more interest than is found in cottage and allotment gardening. This is practically gardening for the million. There is not very much that is new in cottage gardening, because there have been gardens attached to cottages from time immemorial, although not always well cultivated. Still in this respect, through wider knowledge and encouragement furnished by the aid of cottage garden societies, there has, during the past 20 years, been great improvement in gardens, and sometimes there are seen about cottages cultivation and cropping that could hardly be anywhere excelled. But with the enormous increase in population that has been evidenced during the latter half of the present century, it has been found needful to erect cottages in immense numbers that have no gardens, indeed vast numbers of our working population have thus, as it were, been absolutely severed from the land; they have become on it mere dwellers and nothing more. To place these to some extent in the position of the old cottager has been the aim of that great movement in favour of the creation of allotment gardens, which has become one of the chief social features of the age; and

comparatively limited as has been the needful supply, still a great deal has been done, and invariably with the most marked success. The land hunger of the mass of the people seems to be fairly satisfied where garden plots of from 20 to 40 rods in area are furnished, and rarely is it the case that these plots are not admirably cultivated and cropped. It seems to matter little what may be a worker's vocation, gardening appears to come to him almost instinctively ; and whilst here, as in all other things, there are varying degrees of excellence, still even from the most unexpected sources very often comes gardening that would do credit to the best of professionals.

Very considerable impetus to the development of gardening by the million has been furnished during the past few years by the action of the Technical Education Departments of county councils, and none of these municipal bodies has done more to promote good gardening knowledge than has the County Council of Surrey. In that county not only are lectures on practical gardening, or really "gardening made easy," furnished by qualified instructors given in different parts of the county during the winter months, but cottage garden societies are assisted by the sending out to them of capable men as judges, both of cottage and allotment gardens and shows, certificates of merit and books on garden subjects are given as prizes, and in many other ways, especially in the establishment of school or continuation gardens, every help is given towards garden cultivation. The allotment movement may to some extent have been a political and even a party one ; but even if so, the gain to the workers has been great, because this rivalry of parties has immensely aided in furnishing the desired supply of allotments, as well as in arousing towards them far greater interest than before.

Now that public bodies, especially county councils, are realising the great responsibility attaching to them in relation to allotments, we may hope to see the region of party contention disappear and garden allotments become one of the recognised and most patriotic institutions of this great kingdom.

GARDEN DIVISIONS.—Whilst some restriction as to variation in the products on allotments may naturally be looked for, because of surroundings, yet the cottage garden admits of great variety. Thus the cottage itself may be utilised for the growing of trained fruit trees, such as Apricots, Pears, Plums, and Morello Cherries, these fruits doing well on south, east, west, and north aspects, as printed. A cottage porch may be a small arbour of Roses, Clematises, or other climbing flowers; a front window may contain plants inside, a window box on the sill, and plants again in pots on a stage beneath the sill. Then there should always be a front or side flower garden, made to look very gay with both hardy and tender flowers, with biennials and annuals. Fruit can also be well represented, not so much by tall overhanging trees that are detrimental to all crops beneath, but by dwarf bush or pyramid Apple, Pear and Plum trees, planted in rows at intervals, and between which should come Gooseberry and Currant bushes and Raspberries, and around the walks should be lines of Strawberry plants. Of course provision of such things must of necessity be limited according to area, but from one-third to one-fourth of a fair fixed garden may well be utilised in fruit production. For instruction on those subjects see the *Primers* on "Horticulture," and on "Garden Flowers and Plants." 1s. each (Macmillan's).

VEGETABLES.—These naturally constitute the backbone of garden cropping, and require all the space

disposable. Even where space is limited it cannot be too clearly understood that crops depend for production as much on cultivation as found in deep working of the soil, and in well manuring it, as on mere surface area. For that reason the more restricted the garden area, the greater the need for deep cultivation and soil enrichment. In apportioning the areas of vegetable crops, the fullest consideration should be given to usefulness and prolongation. Thus Potatoes constitute the premier vegetable, not only because we always like them, but can have them all the year round. It is not too much to ask that fully one-third of the garden space shall be devoted to them. Next in importance come winter greens, especially as in this category are included Autumn Giant Cauliflowers, white Broccoli, sprouting Broccoli, Brussels Sprouts, Savoy Cabbages, Coleworts, and Kales, which not only furnish a good variety, but give, if in sufficient quantity, a supply of food for the table from September to May. No wonder, then, this class of products takes a very high place in garden economy.

Next relatively in importance come the bulbous and tapering roots, because these again furnish vegetable food of a highly nutritious nature over a very long season. These are represented by autumn and spring sown Onions, Turnips, Carrots, Parsnips, and Beet, all of which require ample room. It is hardly possible to grow these roots too well, though sometimes they may be too large or coarse, but mere size does not indicate high culture. Then there are such valuable summer crops as Peas, Broad, Runner, and Dwarf Kidney Beans, Vegetable Marrows, Tomatoes, Cucumbers, Lettuces, and similar products, all either highly nutritious, or valuable cooling foods in hot weather, and all singularly appetising and

healthful. Where it is practicable, some room may be spared for Asparagus and Sea Kale, the latter especially, and a corner should always be allowed for Rhubarb. Summer Cabbages and Cauliflowers also require space. These are not all the vegetables that may be grown in a good cottage garden, but at least they suffice to show that whilst there is no lack of good material for cropping, the gardener should carefully consider relative value and importance in every case, as well as tastes, in favour of this or that kind, in setting out areas for each kind in a garden.

In presenting gardens for competition it is well to understand that every feature comes under notice in relation to crops of every description, and therefore, the better quality shown in each case, the greater number of points awarded. Farther on is inserted, by permission, the scale on which marks are awarded to crops in allotments and cottage gardens by the Surrey County Council judges; and they are such as well merit general adoption. It will be seen that great stress is laid on cleanliness, which should be evidenced in every direction, not only in sight, but also out of sight. Then the same importance attaches to order or system in cropping. By that is meant such an arrangement of the crops so that there should be throughout fair proportion one to another, none being in great excess; also that the crops be arranged so that in successive planting other crops of a different nature shall follow. The rows should be straight, even, and neat, and well cared for. As already indicated, certain crops are placed in the higher grade, that is, reaching to a maximum of 10 points, whilst several others are placed in a grade of 8 points, and still others in lesser grades. But it is to be specially noted that in few cases probably will the full number of points be given to any one

vegetable. To attain to that high position the crop in question must have the greatest excellence. But the schedule shows forcibly the value in garden competitions of having not only great variety of products or crops, but in having them good. It is indeed surprising how rapidly points add up when every effort has been made to crop well and in good variety. Flower gardens are sometimes associated with the other crops, and are sometimes in a separate class. In allotments it is hardly practicable to individualise them; indeed, in judging allotments good stress is always laid on a fair representation of flowers.

JUDGING ALLOTMENTS.—Not much difference exists between the nature of the vegetable crops grown on these and in cottage gardens. Practically allotments should be gardens, though deprived of those surroundings which are always associated with a cottage. With allotments, however, there is the same demand for neatness and cleanliness, and there is just the same scope for a display of these features. As to system in arrangement, there is not infrequently less of it than in gardens, because so much of the cropping is done in a hurry. Beds or rows do not run right across the ground, but are patchy, a block perhaps here and there, and when so placed materially hindering proper successional cropping. If an allotment is of the ordinary rod width, all sowings or plantings should run right across; whilst if of double or treble width, then a path should divide the ground into equal portions, as in that way cropping and culture are facilitated. Whilst the judging of allotments should always be on the same basis as cottage gardens are judged, yet there is an advantage attached to them seldom found in connection with gardens, and that is their immediate contiguity, which enables one plot to be compared with another easily,

whilst gardens are often widely separated. But great assistance to judges is found in the judging sheets or forms employed in Surrey, where each subject or item has its particular line, the points given in each case being placed under the allotment number; and in that way there is always present a record of the points previously given, and the most exact comparison with others can at once be instituted. Almost all other methods of comparison, especially where the memory alone is trusted without any numerical aid to recall exactitude, is unreliable, and, of course, untrustworthy.

SURREY COUNTY COUNCIL.

Technical Education.—HORTICULTURE.

Judging Cottage Gardens and Allotments.

Besides Local Prizes, County Council Certificates will be awarded for meritorious cultivation.

- 1.—For placing small plots on an equality with large, the MERITS *only*, not the BULK, of the crops are considered.
- 2.—The value of each crop is set down in points.
- 3.—The standard of merit is represented as follows:—

	Maximum Points.
For general cleanliness; system in cropping; Peas; Potatoes; Winter Greens (including Savoy, Brussels Sprouts, Kale and Broccoli); also cultivated Hardy Fruits (not worthless old trees) each	10
For Broad Beans; Runner and Dwarf Kidney Beans; Beet; Cabbages (cooking); Cauliflowers; Onions; Turnips; Carrots; Parsnips; Vegetable Marrows; each	8
For Asparagus; Cabbages (Red); Celery; Cucumbers; Leeks; Rhubarb; Seakale; Tomatoes; each	6
For Artichokes (globe and tuberous); Shallots; Lettuce and Spinach	4

Maximum
Points.

For Herbs (including Parsley, Mint, Sage, &c.);

Horse-radish; Radishes and small Salads; any-

thing not enumerated; each 3

NOTE.—The *greater* the *variety* of vegetables grown *well*, the greater the number of points recorded, but the minor sorts, as counting the least, should only be grown in small quantities, the more useful in larger bulk, not only because they count more, but because they are more serviceable.

FLOWER GARDENS.

Maximum
Points.

In judging these, points are given for order and

neatness 10

For good arrangement and general effect ... 10

For noteworthy hardy flowers 8

For meritorious tender flowers 8

For special features, such as vases, hanging
plants, ferns, &c. each 6

WINDOW AND WINDOW-SILL DECORATION.

For cultivation and quality of plants 10

For tasteful arrangement 10

N.B.—When flowers are judged *with* vegetables (as in cottage gardens) the former are appraised from the 8 point standard.

NOTE TO LOCAL SECRETARIES.—A guide (with all entries in his possession) must accompany the judges in their inspections.

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VEGETABLE EXHIBITIONS.—Although at what are termed cottage garden exhibitions it is a common rule on the part of judges to take into consideration rather greater size in products beyond what is usually admitted in the produce of gentlemen's gardens, yet

it is very unwise to trust to that element of size too freely, as it so often happens that size and quality are far from being synonymous. Generally the taste is in favour of beauty, cleanliness, bright appearance, and good even but not excessive size. These qualities that invariably call forth favourable notice. Exhibitors cannot well take too much care in selecting and preparing their products. It is wise in the case of green vegetables, such as Cabbages, Cauliflowers, Lettuces, or Peas, Beans, Herbs, and others, to cut or gather early in the morning of the show; where, however, not practicable, then after sundown the preceding night. Freshness is of the highest value, and that feature is absent when vegetables are gathered under hot sunshine. Then whilst Cabbages, Lettuces, and Cauliflowers, as soon as cut should each one be wrapped in paper for the purpose of conveyance to the show, thus excluding air and keeping the leaves from injury, pods of any kind should be laid neatly into shallow boxes, or baskets, on Parsley, great care being taken not to rub off the coating of bloom usually found on good samples. Thus packed for conveyance to the show, they will be found very fresh and bright when exposed on plates or otherwise to the judges' criticism. Cucumbers, Tomatoes, and Vegetable Marrows should have just the same amount of care bestowed on them, and if each dish can have a small box or basket to itself, though all be later packed into one large box or basket for conveyance, the result amply repays. All roots—Potatoes, Onions, Turnips, Carrots, Parsnips, and Beet,—should be presented very clean, and of good even size. The test of good and bad points furnished below conveys so much of useful and pertinent information, that it is needless here to recapitulate it. This list of faults and merits of exhibition vegetables is

issued by the Surrey County Council, and forms the basis of awards made by the county judges. Not all vegetables are included, but most are, especially those usually seen at shows.

FAULTS AND MERITS IN PRODUCE AT SHOWS.

1.—If anything is so overgrown as to be coarse, that is a fault.

2.—If anything is too small to be useful, that is a fault.

POTATOES.—Very large and unshapely, specked, or deep-eyed tubers, or those very small, *defective*. Well-shaped, even sized, clean, speckless tubers, with shallow eyes, *meritorious*.

TAP ROOTS (*Beet, Carrots, Turnips and Parsnips*).—Crooked, fangy, cankered roots, whether large or small, *defective*. Smooth, straight, clean, well coloured, even-sized roots, *meritorious*.

ONIONS.—Large bulbs, if thick-necked, soft and maggoty, *defective*. Bulbs all of good even size, firm, sound and clean, with thin stems or necks, *meritorious*.

LEEKS.—Stems thin, tapering, soft, not well blanched, discoloured, *defective*. Stems thick, uniform, firm, well blanched, spotless and pure, *meritorious*.

PEAS AND BROAD BEANS.—Very large pods if hollow (not filled), or pods brown with age, containing hard seeds, *defective*. Pods of good size, green, fresh, and well filled with tender seeds, *meritorious*.

KIDNEY BEANS (*Dwarf or Runner*).—Pods brown or pale in colour, thin, tough or stringy, even if large, *defective*. Pods of good size, fresh, green, fleshy, and brittle, *meritorious*.

CABBAGES.—Hearts, no matter how large, if soft on the one hand, or split on the other, or caterpillar eaten, *defective*. Hearts of good or medium size, firm, yet fresh and tender looking, and surrounding leaves perfect, *meritorious*.

CAULIFLOWERS.—Heads, however large, if brown or yellowish, and beginning to open, *defective*. Heads of good or medium size, close, speckless, white and clean, *meritorious*.

LETTUCES.—Heads loose and soft on the one hand, or pushing flower stems on the other, and leaves tough, *defective*.

Heads firm, fresh, with no visible flower stems, leaves crisp and tender, *meritorious*.

CELERY.—Stalks, thin, soft, specked, not well blanched, and flower stems pushing in the plants, *defective*. Stalks, thick, firm, crisp, speckless, clean, well blanched, and no flower stems visible when cut, *meritorious*.

CUCUMBERS.—Fruits old, unshapely, irregular in size, soft, yellowish, with long neck and nose, *defective*. Fruits young, straight, firm, fresh, tender, green, even in size, short neck, and nose with flower adhering, *meritorious*.

TOMATOES.—Fruits deformed, irregular in size, rusted, over-ripe and dingy, or unripe and green, *defective*. Fruits of good and even size, speckless, bright and glossy, *meritorious*.

RADISHES.—Roots, old, spongy, tough, and flower stem showing, *defective*. Roots, young, firm, crisp, clean, leaves close to the root, no flower stem showing, *meritorious*.

VEGETABLE MARROWS.—Fruits unshapely, or if so old, whether large or small, that the rind resists the pressure of the thumb nail, *defective*. Fruits good or medium size, well matched, well shaped, tender enough to admit the thumb nail, *meritorious*.

RHUBARB.—Stalks crooked, irregular, hard, dry and rusty in appearance, *defective*. Stalks straight, uniform, well coloured and fresh, *meritorious*.

HERBS.—Bunches brown, dry, withered, mildewed, or rusty, *defective*. Bunches green, fresh, with good clean leaves, *meritorious*.

N.B.—So far as is possible, every exhibit should be properly named.

POINTS TO BE REMEMBERED BY EXHIBITORS.

- 1.—Judges at shows always search for faults.
- 2.—Mixing large and small specimens together in a dish weakens the exhibit.
- 3.—Specimens with the fewest faults win the highest prizes. This applies to Flowers and Fruits as well as to Vegetables.
- 4.—Celery and roots for the show table are often injured by scrubbing with a hard brush, instead of washing with a soft one or a cloth.
- 5.—Exhibitors who fail to win prizes should search, calmly and patiently, for the cause of the failure. The losers of to-

day, who profit by experience and persevere, are the winners of the future.

6.—If it is thought a mistake has been made or something overlooked by the judges, a timely and courteous appeal, preferably in writing, to the Secretary, will be attended to.

7.—Experienced and unprejudiced judges have only one desire, namely, to do justice; and any well grounded complaint merits investigation.

8.—There is more honour in exhibiting well in a strongly contested class and losing, than in winning a prize with weak products in a class in which there is little or no competition.

J. WRIGHT.

ARRANGING VEGETABLES AT EXHIBITIONS.—There is always room for the exercise of taste, especially in setting up collections. Ordinarily it is well to have for small collections of four or six dishes shallow wooden trays, painted green. For six dishes these trays may be 30 inches by 20 inches, which is about the space occupied by six large plates. The sides should be about 3 inches deep. On trays of this character the vegetables may be arranged at home, then be well covered with a cloth or newspapers, and so carried to the show. The tray should be dressed with Parsley, and the vegetables displayed as tastily as possible, the largest—such as Cabbages, Cauliflowers, and Turnips,—going at the back and the smaller dishes in front, all being made to show their best sides one way. In the case of smaller collections similar trays of lesser dimensions do admirably. When collections reach to eight or nine dishes, then plates neatly dressed with Parsley are preferable, as such collections too often lose much of their effect by being crowded into large baskets or boxes. In these collections the largest vegetables should be at the back, Marrows, Carrots, and Beet coming next, and in the front, Peas, Beans, and Tomatoes. It is good practice after staging to keep the collection

covered with paper until the tent is cleared. Where single dishes are shown, except, perhaps, in the case of Cabbages, Rhubarb, or anything very large, it is best always to stage in large plates, as the effect is better, and the shifting of the exhibits, if found needful, very easy.

Special care should be taken to name all products neatly and correctly. For this purpose small white cards are best, the names being clearly written. The visitors or general public take far more interest in exhibited products when properly named. The greatest care should be taken to put the various exhibits in the proper places or classes, as where improperly placed they may be overlooked altogether. Then all exhibits should be at the show in good time to get them staged and have their entry cards, furnished by the secretary, placed on them. The exhibitor may then return home fully assured that having in every way done his best, his produce will receive the highest awards that the judges can conscientiously make to them.

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